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POPULAR Computing WEEKLY

4-10 September 1986 Vol 5 No 36 ISSN 0265-0509

SPECIAL supplement

AMSTRAD PCW MICROS

Amstrad PC– unveiled at last

Full details – p4

Spectrum Plus 2 – see p16

News Desk

Acorn's new BBC set for Italy

What future now for the CPC464?

Colour reviews

▲FTL – new games from Gargoyle

▲Fist II – a worthy successor?

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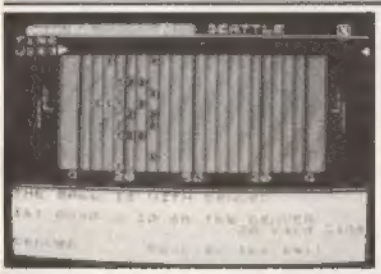

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ABC

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Amstrad takes on IBM with complete PC range

ALAN Sugar is taking the business micro market by the scruff of the neck this week with the launch of the Amstrad PC 1512 range of IBM compatible machines – in no less than eight separate configurations.

As predicted in last week's issue, Amstrad will launch both floppy and hard disc-based versions of the machine at once. The bottom of the range PC, with monochrome monitor and single 5¼ inch disc drive, will sell for £469, while at the other extreme a version with colour monitor and 20Mb hard disc retails at £1,116.

The machines' first public showing is at this week's *Personal Computer World* show at

Wordstar 1512

London's Olympia.

The machines will be among the fastest PC clones on the market. They use Intel's 8086 processor, which is compatible with, but faster than, the 8088 used by the IBM PC and they have a clock speed of 8MHz, whereas the IBM runs at 4·77MHz. They have three IBM-compatible expansion slots, but are significantly more compact than IBM's machines.

The configurations available are also geared to mass market sales, as the only variations are in monitor, which can be colour or black on white monochrome, and storage capacity, which is single floppy plus second floppy, 10Mb hard disc or 20Mb hard disc. The basic machine in all these configurations has 512K Ram, serial and parallel interfaces, battery-backed real-time clock and mouse.

Unlike the PCW 8256/8512 the machines do not have bundled printer or word processing program, but they do include Digital Research's Gem, complete with Gem *Desktop*, *Paint* and Basic, and both Dos Plus and MSDOS operating systems. Dos Plus is Digital Research's answer to MSDOS, and is intended to be a largely MSDOS-compatible operating system, but it appears that the decision to bundle MSDOS as well was taken late, partially to improve software compatibility and partially because Alan Sugar was able to obtain a substantial discount from Microsoft.

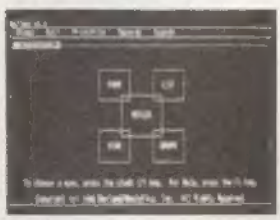
Software support for the machine will be forthcoming from numerous third parties, including New Star and Microsoft, but Amstrad is helping matters along by releasing *Wordstar*, *SuperCalc 3*, *Reflex* and *Sidekick* for the machine. The first three will retail at £69.95, which will provide word processor, spreadsheet and database for the machine. *Sidekick* is a highly regarded notepad/diary/calculator intended to run alongside other applications, and will sell for £29.95. The machines will also have the DMP 3000 printer available for them for £179, and like the PCWs will have a Ram disc capability.

Sidekick* teamed with *Lotus

Alan Sugar predicts that he would be able to wrest "a healthy slice" of the $34 billion (£22.7 billion) worldwide PC market from IBM. "The computer industry majors now recognise that they can no longer foist high-priced machines on the public, and the makers of cheaper clone

The entry-level PC1512

machines lack the international marketing muscle, engineering depth and component sourcing capabilities to



Reflex

sell high volumes worldwide."

The Amstrad PCs will, therefore, be pitched in the middle, the plan being to use high volume to squeeze out the more expensive traditional manufacturers, and mass marketing to eclipse the producers of cheap clones, who won't be able to secure either sufficient volume or distribution channels to be able to rival Amstrad.

But that said, the PC 1512's launch is a gamble – considering the market Sugar is going for, perhaps his biggest gamble yet. The new range will seriously harm sales of the PCWs, and to succeed in the world market must challenge IBM and its rivals on their own territory, the United States.

Amstrad must secure sufficient outlets, and a sufficiently high profile, to carve a dominant slice out of that market, with the ultimate goal of driving IBM out of it. It may work, but Sinclair, Acorn and Apricot have all been forced to retreat from the US in various states of disorder. If anyone can do it, Sugar can, but the target he has set Amstrad is far in advance of those of his predecessors.

Prices (all including VAT)

Single drive	
Monochrome monitor	£469
Colour monitor	£646
Twin drive	
Monochrome monitor	£587
Colour monitor	£784
10Mb hard disc	
Monochrome monitor	£822
Colour monitor	£999
20Mb hard disc	
Monochrome monitor	£940
Colour monitor	£1,116

Sugar: Aiming high

Italian job for Acorn

OLIVETTI is to badge Acorn's new Master Compact, launched earlier this week, for sale in Italy. In preparation for this Olivetti has agreed to sell 3,000 badged versions of Clare's Microsupplies' new *Artroom* program designed specially for the Compact, in Italy.

According to Dave Clare himself the agreement runs until December, and if all goes well an option on larger quantities should be taken up after that. It's not clear how many machines Olivetti expects to sell in Italy, but *Artroom* will be sold separately from the machine, and generally sales of a particular software product will be a very small percentage of the user base.

Olivetti has been interested in the educational market for some time now, but despite its majority shareholding in Acorn has tended to push its own MSDOS-based IBM compatible machines rather than Acorn's BBC series. Olivetti UK's marketing manager Bob Garrett says his division has now sold £1 million worth of Olivetti M24s into educational establishments in this country, and is optimistic about further sales, but although Acorn and Olivetti share the same market here "we don't really compete for individual contracts".

In this country, however, the Acorn-Olivetti link is arm's length, with long term planning being run by Acorn

Herman Hauser

in conjuction with Olivetti's HQ in Ivrea, Italy. The company's original rescue of Acorn was masterminded by Olivetti Italy with little or no input from the UK, part of the rationale being that Olivetti, although dominant in the business market, had no real presence in the home area.

A badged version of the Compact will be the first fruit of the company's efforts to rectify this situation, and of close co-operation between Olivetti and Acorn founder Herman Hauser. With no indigenous home micro producers of any size in the Italian market the machine's prospects there could be better than in the UK.

Olivetti meanwhile isn't commenting on reports that it intends to sell off some of its stake in Acorn, which now stands at 80 per cent.

Acorn itself is now looking healthier, and has achieved a profit of £298,000 in the first half of this year. If this is carried through into the second half the company should end 1986 well in the black, and will be much more saleable from Olivetti's point of view.

● Clare's Artroom is claimed to be the first program written specifically for the Compact, and is a full screen graphics package produced by the authors of Fleet Street Editor. It supports fills, boxes and circles and can use fonts exported from Fontwise. It also includes a graphics library on disc. It is to be sold for the Master at £25 and the Compact for £27, or bundled with a Nidd Valley mouse for around £50–£55.

Software News

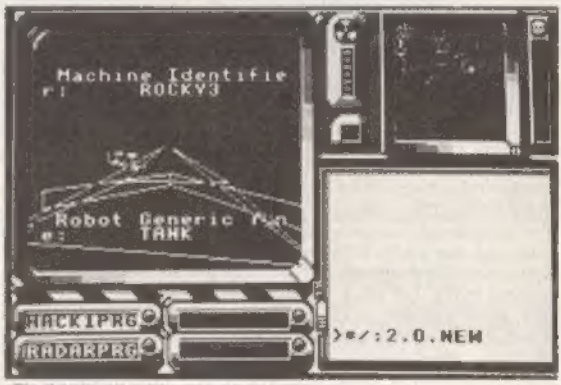
HOT on the heels of the well received *L'Affaire Vera Cruz* comes another mystery/adventure from Infogrames, *The Inheritance (Panic in Las Vegas)*. You start penniless and hungry in your 17th floor hotel room – but with the dream of inheriting your aunt's fortune . . . on condition you win one million dollars in one night at the Las Vegas gaming tables.

It's played in three parts, and the graphics are impressive, with the screen display giving you the view through the eyes of the character you portray. Action is under simple on-screen cursor control, but the problems can be complex – like how to get out of the hotel to your waiting taxi . . . without bumping into the loan sharks you borrowed money from. Out late September on Spectrum, Commodore 64, Amstrad CPC and MSX, with all versions priced £9.95, except Amstrad disc (£14.95).

Andrew Braybrook could be onto another winner with his latest release from Hewson – *Alleycat*.

A fast action vertical scroller, this has you racing your Alleycat speeder over a selection of race types and landscapes, with nasties aplenty.

The Inheritance



Firebird's blockbuster *Cholo*

An excellent combination of reflex action and strategy, it's out on Commodore 64 and 128 only at £8.95 (tape) or £12.95 (disc). Release date September 24 – see next week's issue for a full review.

Firebird's blockbuster-to-be *Cholo*, is being launched on the BBC B at the PCW show. The game is set in a future where SDI has been perfected – and when someone pressed The Red Button.

All the humans went into the massive underground shelter – the robots sealed it with The Cap – and got on with fighting the war.

Down below, months later, life goes on. A computer game, Rat, is particularly popular. You guide robots and roving eyes round a ruined city. Only . . . doesn't the city look a little familiar? And where is all that lethal radiation?

Yup, the robots have decided to keep the humans cooped up underground, out of harm's way. Can you do anything to stop them?

A cross between *Mercenary*, *Tau Ceti* and *Hacker*, programmed by Solid Image, it looks good. Out now on BBC B at £14.95, but conversions are due out soon.

Plus 2 to kill the 464?

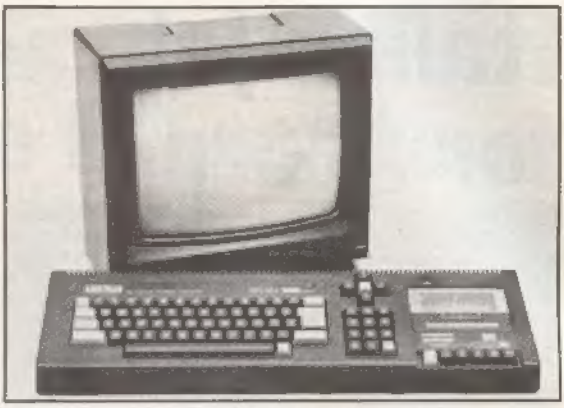
THIS week's launch of the Spectrum Plus 2 (see page 16 for details) could spell the beginning of the end for Amstrad's CPC series. The new machine is the fulfilment of a promise Alan Sugar made when he took over the Sinclair range in April. September, he said, would see the appearance of an Amstradised Spectrum with proper keyboard and built-in tape recorder.

Sugar's intention was to differentiate between the Plus 2 and the CPC 464 by selling the former without monitor, and the latter with, but it seems unlikely that this will be enough. The Plus 2 will retail at £149, while the 464 is currently retailing with monitor for around the £200 mark. Monochrome, monitors are now available if you shop around for under £60 and it's surely only a matter of time before dealers start bundling the Plus 2 with monitor for under £200.

Most of the major retailers won't talk about sales figures, or how they feel the machines will sell against each other. WH Smith – which along with everyone else will be stocking the Plus 2 – pleads ignorance of the new Sinclair, and describes the CPC 464 and 6128 as "good sellers".

John Reid, sales manager of micro supplier Galaset, does however feel that the Plus 2 will affect 464 sales, and adds that the 6128 seems to have been gaining against the 464 over the past few months. The disc-based 6128 is now starting to outsell the 464.

If this is a general trend then sales of the 464 may well decline over the next few months. The 6128 will remain stable for the moment, but with Amstrad reportedly planning a disc drive for the Plus 2, and ultimately a disc version, the former machine could also suffer in the longer term.



The 464 – overshadowed by the Plus 2?

Wanted: a £100 micro

TANDY is looking for a decent low-cost computer to sell in its electrical and consumer computer stores. But the problem is, it can't find one. The slot Tandy UK managing director wants to fill is around the £100 mark, and has been vacated by the Tandy Colour Computer – the machine the Dragon was based on – which Tandy has decided is no longer realistic to sell in the UK.

spokesman Ted Russell, "Current home computer technology's getting a bit boring." He sees the MSDOS standard, personified by Tandy's recently-lauched 1000EX, as taking over in the home market eventually, but doesn't feel disc-based systems will become cheap enough to fill the slot for another 18 months or so.

With Acorn moving off into higher price machines and Commodore increasing the price of an entry-level 64c system to £250, the only obvious contender is Amstrad's Spectrum Plus 2. Amstrad however competes with Tandy in the PC market, so there may be corporate arguments against stocking the Plus.

Tandy meanwhile has hit out at BABT (British Approvals Board for Telecommunications), which has failed to pass the internal modem in its new lap portable, the Tandy 102. "The fundamental problem is that the specifications don't live up to current technology," says Ted Russell. Part of the testing machines must go through involves shooting 1,500 volts through them, and the regulations stipulate that the modem's circuitry should track at least 3mm apart, meaning Kyocera, which makes the machine, would have to retool its production line just for the UK market.

Russell says this would double the price of the machine, so Tandy will continue to sell the 102 in its current unapproved state.

Timatic's hard disc unit

Mosaic goes for sheep publicity

VISITORS to the *PCW* show yesterday (September 3) were to be threatened by a sheep, courtesy of Mosaic Publishing. The company was using the little bleater as part of the supporting cast for Eddie Grundy and Jack Woolley of the Archers, there to publicise its computer game of the series, which it intends to launch in October.

According to Tandy

Commodore to sell standalone 64C version

COMMODORE has revised its plans for the 64C, and is now to sell the machine on its own for £199.99 alongside the £249.99 bundled package that includes tape deck, mouse, Geos and games software packages. The machine will be displayed at the PCW Show this week.

The machine is functionally identical to the Commodore 64, simply having been recased in the same style as the Commodore 128. The company's decision to sell the machine separately means that it retains its presence in the sub-£200 micro market, but despite this it will face a strong challenge in the Christmas market from Amstrad's Spectrum Plus 2, which is £149 for a machine with built-in tape deck.

20Mb for PCW

TIMATIC has produced the WEB system, a 20Mb hard disc unit for the Amstrad PCW 8256/8512. The unit is housed in a desk unit that sits under the PCW's monitor, and has only two cables – one to plug into the back of the machine and one mains power cable. The complete system costs £764.70, while the interface and case can be bought for £245.90.

Details from Timatic Systems, Fareham Market, Fareham, Hampshire. Tel: 0329 236727/239953.

FOOTBALL MANAGER

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MSX

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£8.95

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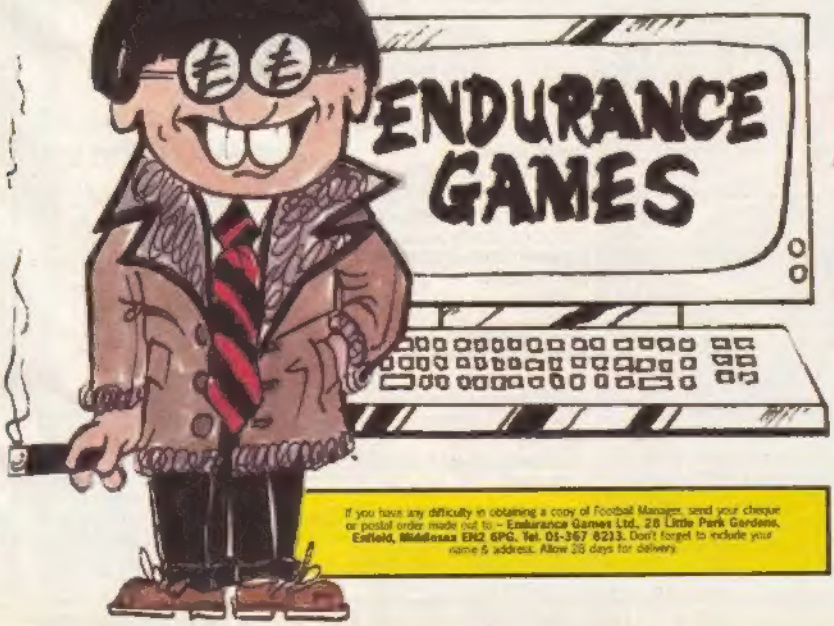


If you have any difficulty in obtaining a copy of Football Manager, send your cheque or postal order made out to – **Endurance Games Ltd., 28 Little Park Gardens, Enfield, Middlesex EN2 6PG. Tel. 01-367 8213.** Don't forget to include your name & address. Allow 28 days for delivery.

Product News

Hotline for businesses

HOTLINE support for CP/M and MSDOS machines is now available from the Small Business Support Group, which for an annual subscription of £40 provides training and support for small business users who bought their hardware or software from high street chains.

The cost includes a free subscription to the One-to-One electronic mail service, with access to the group's noticeboard, and receipt of a regular magazine.

The service has already been adopted by W H Smith, who will be using it to support Amstrad hardware and software.

Details from Small Business Support Group, Bank Buildings, Kennel Lane, Broadway, Worcs WR12 7DP. Tel: 0386 852641.

BBC gets new drives

BBC ADD-ON supplier Midwich Thame is introducing the BBC 435 series, a range of 3½ inch 80 track drives which give a total storage capacity of 640K. The drives are compatible with all BBC micros, and a single version costs £133.

Details from Midwich Thame, Gilray Road, Diss, Norfolk IP22 3EU. Tel: 0379 4131.

Cambrian's PC programs

CAMBRIAN Software has adapted its range of PCW business software to run on PC compatibles. The range includes the *Cambase* database program and Camsoft's *Payroll*. Both of these retail at £49.95, while the *Financial Manager* accounting suite offers stock control, invoicing, sales ledger, purchase ledger and nominal ledger at £149.95, or £49.95 per module.

Details from Cambrian Software, Unit 2, Maenofferen, Blaenau Ffestiniog, Gwynedd, Wales. Tel: 0766 831878.

Just the Thingi?

THE greatest advance in office efficiency since the invention of the paperclip? Overbases's Thingi is basically a large paperclip on a stick that allows you – with the judicious use of velcro – to display documents next to your monitor for reference. For £9.04, it's available in a left or right handed version.

Details from Overbase, 176a Conway Street, Birkenhead, Wirral L41 3JB. Tel: 051-647 8981.

Kuma editor for the ST

KUMA has released *K-Resource*, a Gem-based resource editor for the ST which will produce output files for inclusion in C, Pascal, Modula 2 and Fortran 77 programs. Any number of resource files can be edited simultaneously, and data can be transferred freely between them. The package costs £39.95.

Details from Kuma Software, 12 Horseshoe Park, Pangbourne, Berks. Tel: 07357 4335.

AI for infants

MACHINES That Think is the eighth title in Kingfisher, Science in Action series of children's books. It is an illustrated introduction to artificial intelligence for children from the age of ten upwards. It costs £3.95.

Details from Kingfisher Books, Elsley Court, 20–22 Great Titchfield Street, London W1P 7AD. Tel: 01-631 0878.

PCW joysticks

KEMPSTON has launched a joystick interface for the PCW 8256/512. The interface allows the machine to accept Atari D-type joysticks, and uses protocols based on Kempston's interface for the Spectrum. The company hopes to be able to persuade software houses to cater for the device in future releases. It costs £14.95.

Details from Kempston, Unit 4, Manton Lane, Bedford MK41 7HY. Tel: 0234 327544.

Diary Dates

SEPTEMBER

3–7 September
Personal Computer World Show
Olympia, London
Details: Software and hardware for home, educational and business computer users.
Price: £2.
Organiser: Montbuild, 01-487 5831.

12–14 September
8th Official Commodore Computer Show
UMIST, Manchester
Details: A wide range of Commodore hardware, software and peripherals.
Price: £3 adults, £2 children, £1 discount for advance booking.
Organiser: Database Exhibitions, 061-456 8835.

26–28 September
Electron and BBC Micro User Show
UMIST, Manchester
Details: Software, hardware and peripherals for BBC machines.
Price: £3 adults, £2 children, £1 discount for advance booking.
Organiser: Database Exhibitions, 061-456 8835.

OCTOBER

3–5 October
The Amstrad Computer Show
Novotel, London
Details: Home and business software and hardware for the Amstrad range.
Price: £3 adults, £2 children, £1 discount for advance booking.
Organiser: Database Exhibitions, 061-456 8835.

30–31 October
Hampshire Computer Fair
Guildhall, Southampton
Details: Business computers.
Price: Free entry by business registration.
Organiser: Testwood Exhibitions, 0703 31557.

NOVEMBER

7–9 November
Electron and BBC Micro User Show
New Horticultural Hall, Greycoat Street, London SW1
Details: Hardware, software and peripherals for the Electron, BBC micro and Master series.
Prices: £3 adults, £2 children, £1 discount for advance booking.
Organiser: Database Exhibitions, 061-456 8835.

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

AMSTRAD ACTION
FROM VANGUARD LEISURE

The perfect addition to your AMSTRAD computer

MAESTRO

At last a first class British made amplifier that will compliment your AMSTRAD games machine. This package needs no external power source and comes complete with 2 double cone air suspended pod mounted speakers, one pair of stereo head phones and a demonstration cassette with disk transfer facility compatible with 464/664/6128

EASY LISTENING!

To support our new product 'The Maestro' we are also releasing an exciting new range of electronic digitised music compilations called EASY LISTENING. Instead of putting the computer away after zapping the aliens (in wonderful stereo) or sending out those reminders of overdue accounts just choose an EASY LISTENING album and enjoy some music!

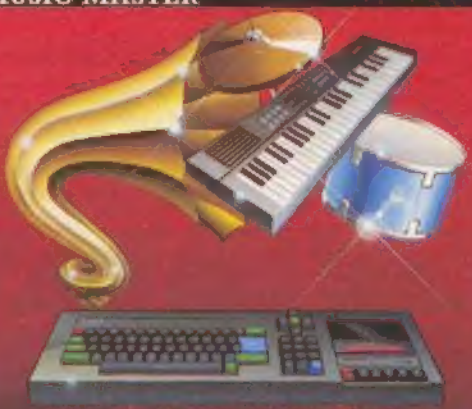
Cassette £6.50

Disk £14.50

MUSIC MASTER!

If you like you may wish to try your hand at producing your own music with our music for beginners...

MUSIC MASTER



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Letters

Star Letter

Oric unfortunate

I am one of the unfortunates who bought the Oric Atmos. In fact, I couldn't wait for mine to get into the shops and I obtained mine at the factory. I have never put the thing to much use, but then perhaps I didn't need a micro as I'm not interested in games and I'm not in business.

Anyway I found a lot of the games just didn't run, despite being marked Atmos compatible; even *The Hobbit*, the playing of which got me into computers in the first place, used to get so far and say, "you are in the forest", while showing a picture of a dungeon.

Despite all this, one often reads about tapes and programs to make various micros do certain things which the Oric Atmos will do as a direct command, eg, the program by David McGlynn to put the Commodore into high resolution. The Atmos does this by typing *Hires*.

I feel that the Atmos fell by the wayside because of lack of support and price undercutting in the High Street. In many ways it still outshines the current spate of micros despite their memory sizes; the Atmos keyboard is certainly better than many.

There is, I feel sure, a case for a magazine to spare a space for these micros like the Atmos left high and dry by the race to get computers on the market. Since manufacturers seem determined not to create computers which are compatible even with micros produced by the same company, there will be an increasing number of people like myself, who cannot afford to change micros or upgrade.

I think the market already shows signs of losing its bottom end in sales, because of short-sighted insistence in non-standardisation and the increase in price from less than £200–£300 upwards.

Arthur Dabner
Farnborough

Baffled by reviews

As a regular reader of your magazine I have recently been baffled by your software reviews pages.

In your April 10 issue, you reviewed *Flexifile* and described it as a "cheap and powerful database", with "powerful features often seen on databases at two to three or even more times the cost", and "compares very well with *Cardbox* which costs £99".

In the August 14 issue, *Microfile*, which I understand is the same program as *Flexifile* but with an Amsoft label, is described as a "limited yet flexible introduction to small

continued on page 13 –

Maltese Falcon?

First of all, allow me to congratulate you for your excellent magazine which forms an important part of the computer industry.

I am writing to bring to the UK public's attention, the sorry state which the Maltese software market has found itself in.

We are the only software distributors on the island and we supply over 60% of the island's outlets. The other 40% only sell pirated copies of software. About 10 months ago, the figure was 85% selling copies with the rest selling a mixture of originals and copies. So as you can see, we have done much to improve the situation. We asked numerous software houses to help us curb the problem, even offering to take the necessary financial burden of legal action which *is* possible on the island. However, I am disappointed to say, only a few gave us the necessary help, with the result that their software was no longer pirated. Others were "interested" but still did nothing concrete. A few did not even answer our letters.

The situation today is that we are only selling 25% of what we could sell had the situation been normalised, which means that UK software houses are only selling 25% of what they could sell. And I remind you that these same software houses would lose or risk absolutely nothing.

The local hardware agents for various makes of computers, e.g. Atari, openly give pirated software with each machine that they sell, and also sell pirated copies. When the various UK suppliers were contacted their reply was to send the local agents copies of our letters.

Individuals are exporting "professional" copies to other foreign markets (of this we have sent proof to the software houses) and so inflicting large losses on the industry.

When one sees all this, one starts to ask himself: Do the software houses realise what the situation in Malta is? Do they know what financial losses it is making them incur? Why don't they take any steps to help eradicate this problem?

Maybe someone can enlighten us regarding the above questions.

David Thake
Software Distribution Enterprises
Malta

Puzzle

Puzzle No 223

There are three cards, A, B and C. On each card is written a different two digit number.

By combining the cards in a different order either in pairs or using all three it is possible to form six different four digit numbers, and six different six digit numbers.

What numbers should be written on these cards in order that a maximum number of primes would appear in the list of four digit and six digit numbers?

(Such tricks as, for example, inverting a 19 to form a 61 are not allowed.)

Solution to Puzzle No 218

Answer
The Professor's locker number was 6174.

Solution
The locker number must be in the range 1111 to 9999. Each of these is taken in turn and converted into a string value in line 30. Lines 40 to 80 arrange the digits in this string into reverse order by means of a 'bubble sort'. Lines 90 to 120 reverse into string R$ the order of the digits, and line 130 finds the difference between the digits in *descending* and *ascending* order. If this is equal to the original number the results are printed.

Therefore, the result, 6174, is equal to 7641 minus 1467.

Winner of Puzzle No 218

The winner this week is Mark Young of Quag's Meadow, Sussex who will be receiving £10.

Rules
The closing date for Puzzle 223 is September 23.

```
10 CLS
20 FOR N=1111 TO 9999
30 N$=STR$(N)
40 FL=0
50 FOR G=1 TO 4
60 IF MID$(N$,G,1)<MID$(N$,G+1,1)
THEN N$=LEFT$(N$,G-1)+MID$(N$,G+1,1)
+MID$(N$,G,1)+MID$(N$,G+2):FL=1
70 NEXT G
80 IF FL=1 THEN 40
90 R$=""
100 FOR F=1 TO 5
110 R$=MID$(N$,F,1)+R$
120 NEXT
130 P=VAL(N$):R=VAL(R$):D=P-R
140 IF D=0 THEN 160
150 IF N=D THEN PRINT N,P,R,D
160 NEXT
```

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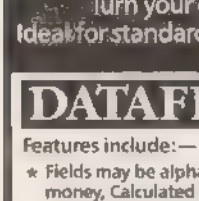

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- ★ Handles multiple page letters all up to 100 lines.
- ★ Detailed, 'tutorial-type' Manual.

VISA

DEALERS: RING FOR DEMO DISC, FULL PROGRAM SPECIFICATIONS & DISTRIBUTOR DETAILS

—continued from page 10

databases . . Don't expect a marvellous piece of software."

Both reviews do agree that the manual is very poor indeed.

There also appears to be some disagreement about the price. The shops in the High Street are offering the Amsoft package *(Microword/ Microfile?* for £49.95, while your latest review indicates that it can be purchased for £10 less. Can somebody tell me the truth about this?

David Egdell
Glasgow

The truth about the reviews is that both are equally valid. Reviews are essentially subjective, and one of the ways *Popular* makes this clear is always to name the authors of each review.

In this case, David Wallin who reviewed *Flexifile*, evidently felt it suited his needs more than Chris O'Toole did with *Microfile*. You are absolutely right that the programs are one and the same, incidentally.

You are also correct about the price, which should indeed have read £49.95. Apologies to anyone inconvenienced by this.

Searching for Shinwa

I have recently decided to buy a printer and modem for my Spectrum 128K.

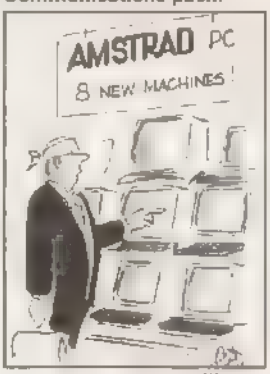
The printer I have in mind is the Shinwa CP-80 Plus, with its new NLQ mode. Do you know who stocks this?

For the modem, I want it to be *Mud* compatible, along with Micronet 800. Unfortunately I do not know much about modems and I only have £150 to spend. I would appreciate your help.

Paul Panayis
Northampton

The main UK distributors for Shinwa printers are Microperipherals Ltd, of Intec Unit 3, Hassocks Wood, Wade Road, Basingstoke, Hants (0256 473232). You can write to, or telephone the company for a list of stockists.

Regarding the modem, there are a number of suitable models around for under £150. However, Micronet itself recommends the QMod, plus the Spectre Communications pack, which should also be *Mud* compatible. For more details on this package, you can contact Spectre the company at The Old School House, Tenter Row, Crosby Ravensworth, Penrith, Cumbria (0931 5362); or Micronet 800 on 01-278 3143; or refer to *Popular*, July 3, which carries a full review of QMod and the Communications pack.



"I'll have that one!"

Geos addendum

I am writing to you with regard to the recent reviews in your magazine of Geos for the Commodore 64.

I would like to point out that there is a mouse manufactured by Commodore US which is compatible with the Geos joystick driver program.

The Commodore 1350 mouse is the same as the Amiga mouse in terms of looks; however it is digital, as opposed to analogue, which makes it compatible with the many applications programs for the C64 which use joystick control, such as *Music Construction Set, Vidcom 64* and *The Newsroom*, as well as games like *Shadowfire, The Fourth Protocol* and *After Ego*.

The 1350 mouse costs $44.95 plus tax (the equivalent of £30 ex Vat) and is widely available throughout the US, as is Geos version 1.2 (all the reviews in British magazines have been of version 1.1).

I would also like to point out that Geos works perfectly well with a single 1541 drive (in fact, there is no real benefit to be derived from the inclusion of a second drive in the system). Geos creates a work disc, with all the files on it that you wish to use (including those previously created by the user). It is therefore unnecessary to change discs, except when transferring files from one disc to the other. This facility permits the user to have a disc or discs dedicated to word processing containing *GeoWrite*, any fonts which the user wishes to use as well as his or her own files.

The same is also possible with *GeoPaint*. All work discs must have an input driver (ie, joystick), and if you wish to make a hard copy, a printer driver suitable for your printer configuration.

I might also add one or two problems, which will need to be altered before Geos is launched in the UK. Firstly, *GeoWrite* has no pound sign, and secondly, its clock is set to run at 60Hz (as used in the States) as opposed to 50Hz (as in the UK), the result being that Geos counts 50 minutes for every hour of real time in the UK!

Andrew Bowman
Glasgow

The version reviewed in *Popular Computing Weekly* was, indeed, version 1.2.

Chess, mate!

Many thanks to everyone who has contributed to getting the *Popular* vs *Colussus* chess match off to a good start. Considering that the Bank Holiday got in the way, and that we're not yet at the exciting cut, thrust and exchange of the middle game, the response was excellent.

To refresh your memory, we asked you to supply the next moves in these two games:

Game 1		Game 2	
White	Black	White	Black
1 P e2–e4	?	?	

The most popular moves we received were a response of **1** . . P e7–e5 in Game 1, and an opening move of **1** P e2–e4 in Game 2.

Colussus has duly responded in each game (see below), so this week we want you to suggest the best next move in each case:

Game 1
1 P e2–e4 P e7–e5
2 Kn g1–f3 ?

Game 2
1 P e2–e4 c7–c6
2 ?

Send your suggested moves in place of the question marks to *Popular* Chess, Unit 11, South Block, The Maltings, Sawbridgeworth, Herts CM21 9PG, by September 11.

The most popular suggested move will be entered into the game. *Colussus* will then respond, and the next moves will be printed on the Letters page two weeks' time.

Prizes

A British Museum reproduction Arran Chess set will be awarded to the reader who suggests the greatest number of accepted moves by the end of the game.

Mail order surveys

We've just finished a survey on the mail order side of our business, and have come up with the following figures which may be of interest to your readers and other companies with a mail order service.

Ninety per cent of customers received their orders within three days of posting their letters off (70% of these in two days). The remaining 10% were received in four to five days.

These figures aren't hard to achieve, either. The UK has easily the best postal service in the world; all we do is use a twice daily despatch and first class post. In our experience most companies with a mail order department achieve similar figures.

The reason I am writing this is the number of calls we get at our offices, asking, "How long will it take to reach me?" In actual fact it's probably easier than trudging round the shops trying to find what you are looking for.

Isn't it a shame that a few unscrupulous companies have spoilt it for the majority?

D Latham

Vortex pulls ahead in the 5¼ inch race

John Mawhood plugs into CPC 5¼ inch disc drive

The time is ripe for 5¼ inch drives for the Amstrad machines. They seem to be fairly dropping off the branches for the PCW range (see *Popular* July 24 and Aug 6) but Vortex's X Drive for CPCs has a wealth of features which put it ahead of the competition. If you are a heavy user of disc storage it makes financial sense, too.

The X Drive comes from the West German company, Vortex, makers of the 'up to 512K internal memory expansion' for the Amstrad CPC range and a previous 5¼ inch drive which could be used with Amsdos.

So what's different? Well, a good deal of thought has gone into the design. The package contains the drive, which gives a formatted capacity of up to 703K with a 128 entry directory, a combined monitor/disassembler and disc-drive monitor/editor in Rom and an optional true bi-directional RS232 socket, and the necessary software to patch your CP/M (2.2 or Plus) so that you can make full use of the larger disc space in CP/M.

Additional commands

As part of the proprietary VDos extension to Amsdos there is an array of additional commands, exceptional because they are actually useful. They are available whether or not you are using the VDos X Drive, as they reside in Rom. Some of them are replacements for the Amsdos disc commands, needed because the VDos Rom intercepts calls to the disc controller routines.

At last a command which allows you to format your discs from Basic. *Format* does the job simply and without fuss or having to boot up CP/M. Another command allows you to set files to read only or read and write, system or data status, again from Basic. *Dir* from Basic will produce the same output as the CP/M command, so you can specify wildcards and extensions you want to look at. You can now have: *Era,"Test.*"* or *Dir "*.Txt"*.

The command *Roms* gives you all the information about the available external Roms and with *Romoff* you can disable a Rom, at least until you reset the computer.

A novel idea, but also very useful, is the facility to swap round the drives (no, not by unplugging – you just give the command *X*): so that you can make the 5¼ inch drive A, and the 3 inch drive B.

> *"A novel idea, but also very useful, is the facility to swap around the drives – you just give the command"*

Vortex has also provided you with a Rom solution to the *Eof* problem in Amsdos. With the command *Derror,2* you can select which end of file test will be made: for 1A(hex) or for the hard end of file. If you have tried merging Basic programs under Amsdos you may have been dumbfounded to hit the error *Eof met* and find only part of your program has merged. Vortex claim to have fixed this with the new command, which takes various parameters depending on what you want to be taken as the end of file marker.

The command *Derror* has other uses: within Basic programs you can test the parameter it returns to detect the whole range of disc error states – not available under Amsdos. It is also a necessary adjunct to the range of relative data file construction commands, with which you could build up a large database of records on disc and access them from Basic much faster than a sequential file under Amsdos.

To complement the relative data file commands, VDos also allows you have open, for reading or writing, up to 16 files at one time – a great improvement on the open-read-close-open-write rigmarole. If you are into megaprogramming feats in Basic this facility could be made for you. If you have the Vortex Ram expansion you can use the record facility which gives a potential storage capacity of 224K in Ram, and the commands for that would fit in well with relative data files.

Z80 and Disc Monitors in Rom

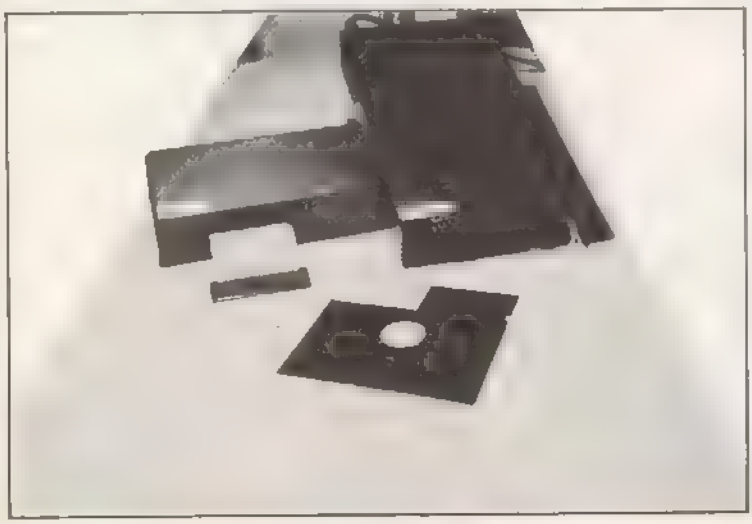
Almost as a throw-away, Vortex has included as part of the package a very serviceable monitor assembler/disassembler in Rom, which can be called at any point in a program and, so the manual says, will return you to the same point when you exit (assuming you have not altered the registers, I expect).

With it you can set breakpoints, call machine-code routines, display in Ascii and Hex the contents of memory (choosing whether you want to see the shadow areas of the memory map), dump to printer or disc and load programs within the monitor, etc.

But that's not all. The Z80 monitor includes a disc monitor, which allows you to inspect the contents of your discs track by track, sector by sector. Of course, being in Rom, none of this takes up valuable memory and when you have finished you can simply go back to your program – handy for just tracking down bugs in your machine code.

True turnkey facility

If you tend to run the same program a lot, in either CP/M or Amsdos, a VDos Rom



The Vortex X Drive: ahead of the competition

continued on page 16 –

MIAMI DICE

BUG-BYTE

CBM 64/128
Spectrum 48/128
Amstrad 464

Victory House, Leicester Place,
London WC2H 7NB.
Tel: 01-439 0666

– continued from page 14 –

routine will automatically run it for you. When you switch on it looks for a file called "hello" (if there is one) on drive A. Say this contains a program:

```
10 CPM.2
```

When you switch on, that program will be run and will boot up CP/M from the second drive and the command buffer on the second disc can auto-boot a CP/M program. The "hello" program could just as easily run *Tasword*, or give you a menu of programs to run. Pressing *Esc* when you turn on disables the turnkey function.

Let your CP/M take wings

Bring out your dead CP/M 5½ inch software! Vortex is developing a program, called *Para* for reasons that will become obvious, which has a library of some 70 different CP/M disc formats plus a disc parameter format editor – in case you need to define one that is not in the library. Any new formats can be added to the library for future use.

This means that you will be able to set up the Vortex drive to read from virtually any 5½ inch CP/M disc. The library includes, I am told, the usual standards: Kaypro, Osborne, etc.

You could suddenly find your old CP/M favourites available without having to wait for them to appear on 3 inch disc.

To make best use of this feature you would need to have a full-size CP/M (Amstrad only gives you 40-odd K). So you could add on the Vortex Ram expansion specifically designed to do this (a new version will emulate the 6128 as well and run CP/M plus).

Using it with the Ram expansion makes a lot of sense. I often get into difficulties when it comes to switch off, rummaging around my 3 inch discs trying to save the files on a 400K odd silicon disc. The Ram expansion makes it possible to use full-size CP/M 2.2 programs, and if you do that you really notice how little you can store on the 3 inch discs.

You are supplied with a disc with all the necessary patch programs to install the X Drive with CP/M 2.2 Amsdos and CP/M Plus. Amongst them is a real gem: a filecopy utility that works under CP/M and uses windows. It can handle single-drive copying. You simply highlight the files you want to copy and it does the rest. Unlike the standard CP/M utility it is fast, because it copies as many files as it can into memory before asking you to swap the discs.

Drive performance and the manual

I did some rough benchmarks and found that the X Drive saved and loaded faster than my 3 inch drive – something like 40% faster depending on length and the type of file

The technology is well tried and proven; I did not expect and did not find any problems in use. The manual I received was in German. If the translation is good the English manual will be very good. It includes full documentation of the VDos Rom routines and of the CP/M Bios. However, nothing is perfect.

The review drive had a buzz which became an irritating hum as the night wore on. This may have been the PSU in the particular drive, but it ought to be fixed as the drive is otherwise beautifully quiet compared to my old 3 inch.

Because the X Drive was designed to work at a faster step rate than the 3 inch it tends to produce read errors unless you install a patch, which Vortex thoughtfully provides in both VDos and CP/M versions, to let the drives work at different step rates. Is that a niggle? Yes, because the patch cannot be run from your auto-boot program – it returns you to top level. Surely that's the first thing you will want to do with an auto-boot?

Conclusion

Amstrad made quite a lot of the CPC range's compatibility with CP/M. I think the words were "giving access to over 3000 titles". But this should have said "subject to memory size required". Whether or not it was intentional, the CPC range never opened itself up to full CP/M 2.2 compatibility – with the benefits accruing for the manufacturers and distributors of 3 inch discs and 'pocket' CP/M programs.

For the serious CP/M user the availability of 5½ inch drives with a full CP/M means that Amstrad owners have nothing to lose but their chains. Heavy disc users will relish the extra storage and cheaper discs. BASIC programmers have a well-designed extension. Vortex currently provides a very comprehensive package – good value!

Product *Vortex X Drive* **Micros** Amstrad CPCs **Price** £220; with bi-directional RS232 interface £250 **Supplier** Viglen Computer Supplies, Unit 7, Trumpers Way, London W7

The long-awaited arrival of the Spectrum +2

John Cook describes the Amstradified Spectrum

Dateline Monday April 7, 1986 and with the dawning of the day, halfway into the first cup of office coffee, comes the summons to attend a press conference 'of some importance'. The shock news – Amstrad buys the rights to Sinclair home computers – and immediately comes the announcement that an enhanced Spectrum will be released in time for the September PCW show, with built-in data recorder and 'probably joystick ports', selling at 'around £139'.

Dateline September 4, 1986 and here it is, true to form, the ZX Spectrum +2. And let it never be said that Alan Sugar is not a man of his word – the problem is that to get to the bottom of things, you must listen very, very carefully.

Appearance

Gone is the keyboard that we all complained about for so long and in is brought a genuine 'professional style' keyboard – which feels remarkably similar to that of the PCW. There will not be a

> *"At long last, two joystick ports and the reset switch"*

market for add-on keyboards for the Spectrum +2. The keyboard layout of the old Spectrum +(1?) has been retained, including combined function keys, such as the punctuation keys. Keywords, however, have been largely removed from the actual keyfaces, with the exception of *Load*, *Code* and *Run*. No-one is expected to program the Spectrum +2 in 48K Basic.

The promised data recorder has been placed to the right of the keyboard – as with the Amstrad 464 – bringing the whole unit to around the size of a PCW keyboard, but less bulky than the 464 keyboard unit.

On the left-hand side of the Spectrum +2, at long last, two joystick ports and the reset switch. Before you set off the fireworks and rush to send congratulatory telegrams to Amstrad, note that the warning 'USE ONLY SINCLAIR SJSI JOYSTICKS' lurks above the ports.

continued on page 17 –

– continued from page 16 –

Reports indicate this means that to use the ports, non-standard Sinclair joysticks (described as optional extras in the official literature) must be purchased.

The rear of the machine boasts the full expansion port (fully compatible with Interface One, microdrives, etc), RS232/Midi Out and Keypad ports, both still that annoying reverse Telecom configuration, RGB and TV output, separate Audio output, and finally a socket to plug the external power supply into. The 9V PSU is not described as an optional extra – it comes with the package.

Finally, between the datacorder and the keyboard, lies a small 'Power On' LED.

Firmware

Doing anything major to the Rom was out of the question, on grounds of compatibility and time. When running, the system is almost identical to the 128K +. The same one-touch start-up screen, giving the same options. No alterations to 128K Spectrum Basic. Same full screen editor in 128K mode. Same screen test facility (hold down Break and reset). No suprises here.

Conclusions

Alan Sugar has taken the Spectrum 128K +, put in a new keyboard, bolted on a data recorder, added two joystick ports and to top it all, pushed it out for £149. That's thirty pounds less than the original 128K machine. Impressive. The documentation refers to word processing functions available on the keypad (again, optional) – so maybe we're looking at a future £199 wordprocessing package? Certainly the keyboard is up to it. In any case, expect a flood of Sinclair badged products, including monitor, disc drive, printer and probably modem, too.

On the down side, the joystick ports are non-standard (a minor quibble) and the innocent, but potentially disastrous SQC (Sinclair Quality Control) system of officially 'approving' software as Spectrum +2 compatible has been introduced.

But anyway you look at it, this machine is a winner. A tribute to Amstrad's manufacturing and marketing skills, it is cheap enough (and compatible enough) to appeal to existing Spectrum owners with ageing machines, who want a low-cost upgrade. It is stylish and simple enough to appeal to first-time buyers. Questions like 'isn't this, in essence, a four-year-old machine?' will be drowned out by the ringing of cash registers.

Alan Sugar, contrary to common belief, cannot walk on water. But the Spectrum +2 confirms that this man floats where others flounder.

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Get cracking with The Cracker

As its colourful name may suggest, *The Cracker* is no ordinary spreadsheet, but one of those rare breed of programs that have been subjected to a major rethink about how they should be made to work to suit the average user.

If you are looking for a spreadsheet that can just do lots and lots of number crunching, *The Cracker* is probably not the most powerful program you can buy; it is certainly more limited in size than, say, *Multiplan*, giving you a maximum of 52 columns, 255 lines and 18K of data. However, this is probably adequate for something like twelve month financial reports and the program also has a selection of powerful features that in my opinion make it one of the best buys around.

Perhaps the most notable feature is that it is extraordinarily friendly and easy to use. Every command you type, using a single letter keyword mnemonic system, is checked as it is entered to see that it is both legal and makes sense ■ terms of the sheet you have defined so far. If an error is found an explanatory message is displayed on screen (in English rather than the normal CP/M garble). If that still isn't enough, help screens can be called up at any time.

The Cracker also keeps track of the logic of the sheet you have defined – it gives each entry a rating for order of re-calculation to ensure that only after any changes only one calculation is necessary to ensure a correct result. It may sound an obscure point until you have tried using a program that doesn't have this feature. Similarly you cannot remove data if a calculation somewhere else ■ the sheet depends on it to make sense, at least not without first confirming that this is really what you wanted to do.

Other strong features are some nice graph drawing functions (high quality screen display and also hard copy) which are extremely simple to use, much easier than *DR Graph*, for example (although *The Cracker* can also feed data directly to this program as well). Database functions will let you sort and search things like names and addresses and even print mail labels.

There are also I/O port controlling options – build a loop containing inbuilt date and time options and it can control your lights whilst you go on holiday.

An ordinary spreadsheet it isn't, versatile and friendly it is.

Tony Kendle

Program *The Cracker II* **Micro** Any Amstrad CP/M **Price** £49.00 **Supplier** Newstar, 200 North Service Road, Brentwood, Essex.

Graphics to turn the figures around

K-Graph Business Graphics from Kuma is the type of program executives use when called to face their superiors with this month's sales figures. Instead of rolling into the office with just a printout of black and white figures which reveal falling profits and the like, they use this sort of program to dress the bad news up ■ fancy graphic displays which show that you are actually doing better than Blogs Inc from down the road.

As someone once said, you can make figures say what you want them to say, without actually lying. But, if you have K-Graph then it makes the job easier as it offers eight different ways of displaying data. These include line graphs, scatter graphs, 3D bar charts, stacked bar charts, vertical bar charts, overlaid bar charts, horizontal bar charts and, finally, pie charts.

Entering the data ■ be graphically manipulated is straightforward, provided you follow the manual carefully. From then on it's equally easy to produce dispays with labels, legends, titles, text and arrows, and featuring up to 20 sets of data at once.

Once a display is created in say line graph format it can be redisplayed in any of the other formats, thus illustrating which format has the best effect for any particular display.

All this is good and well, but when it comes to the crunch and you want a printout the problems start. For one thing, even though you can have four windows open at the same time, you can't dump an entire screen's contents to the printer at one go. You can only print out the contents of one window at a time. You could save the screen to disc and load it into Degas from where you could dump it, but only if you owned Degas, or course.

The options presented when you want ■ printout are far too fiddly and some experimentation will be necessary to obtain a correctly scaled hard copy.

Still, all in all a very good program, with an Achilles heel.

Duncan Evans

Program *K-Graph* **Price** £39.95 **Supplier** Kuma Software, Kuma Computers Ltd, 12 Horseshoe Park, Pangbourne, Berkshire RG8 7JW.

A Tasdiary for computer dating from Tasman

No prizes for guessing that this ■ an electronic diary program from the publisher of the *Tasword* word processor. What does surprise me is that it is such an attractive and easy to use program that it overcomes my conviction that pen and paper is really the only sensible option for ■ diary.

The main screen layout consists of a window of diary text and four surrounding box displays showing the current options, the date and time and the calendar for the current month. This calendar ■ programmed correctly from 1753 up to December 2100 – long enough for the most ambitious ■ us I expect.

The diary is accessed from disc on a month by month basis and data can easily be inspected or edited into a given day as long as you have the appropriate password.

I do feel that more work could have been got out of the computer to justify the effort of loading up the disc. One idea for example is that you could record appointments with some sort of 'alarm status' so that when you log on the time and date a warning can be given of important events coming up that week. However, on the whole it is an attractively designed and good value utility that should do well.

Tony Kendle

Program *Tasdiary* **Micro** Any Amstrad CPC with discs **Price** £12.95 **Supplier** Tasman Software, Springfield House, Hyde Terrace, Leeds LS2 9LN.

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Christina Erskine fights off ninjas, warriors and assorted baddies in Fist II

Surprised by a ninja in the forest

Way of the Exploding Fist caught everyone's imagination last year. One of the first of the martial arts games for home micros, it and *Yie Ar Kung Fu*, the coin-op game, spawned a host of imitations.

The sequel, *Fist II: The Legend Continues*, has been a long time coming, but is finally scheduled for this autumn. It is also being shown at this week's *PCW* show.

Space is limited in the underground caves

While the graphic style of the game is very similar to *Fist I*, the backgrounds are rather more robust than the Laura Ashley effect of the original title, while the design of your character and the adversaries is slightly more sophisticated.

Fist II is really an arcade adventure, with a quest, and evil nasties out to thwart you, and mystic trigrams to find en route; in short, all the ingredients of the traditional arcade adventure.

Fist aficionados will be pleased to hear that (at the start of the game at least) all the moves are identical. That's right: joystick down with button pressed for that highly effective ground-sweep, etc.

Your quest is to find eight trigrams and absorb enough spiritual energy from them to overthrow the evil warlord, who naturally enough, is out to stop you with his troupe of assassins and weapon-throwing ninjas.

You start off in the countryside with nothing more harmful than a few panthers and the odd masked bandit to beat off. Doing so will deplete your energy, and to top it up you must find a scroll with a trigram (three horizontal lines to you and me) imprinted on it.

Armed with a trigram, you must next find its corresponding temple. Once there you meditate at the shrine. Your energy will then increase according to the fighting prowess you have shown so far in the game. Also, some new fighting moves will be revealed to you.

There are eight trigrams and temples to be found before you get to confront the warlord.

However, before long, the warlord will realise that you're on his trail, and send out his henchmen, to get you – his assassins being vastly more proficient opponents than the masked bandits and mercenary village tribesmen you have encountered earlier.

> *"It's hard to see how any fan of Exploding Fist could dislike Fist II"*

It's hard to see how any fan of *Exploding Fist* could dislike *Fist II*. The variety of background landscape, with forests, caves, temples, open plain, lakes and waterfalls, with ladders to scale and climb down, all on a continuous scroll, is quite stunning.

Our version was a Commodore preview disc, without sound (which added so much to Commodore *Fist*) and some of the opponents. I suspect that in its finished form, the C64 version will again be the premier implementation, but Spectrum and Amstrad versions will be worth a look.

Provisional release times for *Fist II* are mid-September for the Commodore, the beginning of October for the Spectrum, and mid-October on Amstrad CPCs. Prices will be £9.95 on Commodore and Amstrad, and £8.95 on Spectrum.

Melbourne House, 60 High Street, Hampton Wick, Kingston-Upon-Thames, Surrey.

Inside the temple

Something rather unique

Tony Kendle tells you how to win on Heavy on the Magick 2, Crazy Comets and more . . .

Before we get on this week I must just give a quick mention to Adam Mayor (which ■ the closest spelling I can decipher) who was the first to write in with the solution to *Knight Tyme*, having finished it back on July 22. We haven't got around to publishing your tips yet, Adam, because we have had a lot of letters about the game as well as *Spellbound*, and we will be printing them together in a David Jones special beginning in a week or two's time.

In the meantime I have had a letter from Brian Riggle and Johnny Tse in Leeds who have sent a couple of tips for Gargoyle's *Heavy on the Magick*. I did say that I was going to let Tony Bridge have the pleasure of dealing with this game but it didn't seem worth delaying these: "To get past Rabak type *Rabak, Water*. To open the exit door ■ Pilefoot type *Door, Eleven*". Don't ask me what ■ means.

The next item is rather unique in the history of the column. Alastair Scott of Grangemouth has sent ■ two pokes for T. A. Bratley's game, Debuggin' for the Amstrad which was published in the programming pages of *Popular* a few weeks ago. Enter these pokes just before the *Call 31663* in the game's loader. *Poke &7CBA,n* where *n* is the number of lives from 0 to 255. *Poke &7D51,0* for infinite lives. Thank you Alastair.

Commodore owners will be pleased to hear that we have had another letter from Richard J. Groome of Maldon who sent in the excellent *Undium* cheat a few weeks ago. In return for printing these new tips, Richard insists that we say hallo to Andrew Braybrook, Andrew Grove and James Cooke at Witham District Computer Club. The pokes are for *Crazy Comets* from Martech and *Z* from Rino. Firstly *Crazy Comets:*

```
10 PRINT CHR$(147)"CRAZY COMETS CHEAT (C)
RICHARD GROOME 1986"
20 FOR I=4096 TO 4125: READ A: POKE I,A: NEXT
25 PRINT "[down] [down] STICK CRAZY COMETS
TAPE IN"
30 PRINT "AND PRESS ANY KEY TO LOAD"
40 GET A$: IF A$="" THEN 40
50 SYS 4096
60 DATA 169,1,170,168,32,186,255,169,0,133,
183,32,213,255,169,76,
70 DATA 141,149,3,169,226,141,150,3,169,
252,141,151,3,96
```

then type *Run(return)* and when the computer has finished loading, enter some music cheats:

```
SYS24609:POKE 780,0: SYS24743:REM INTRO
MUSIC
SYS 24809: POKE 24756,56:POKE 780,0:
SYS24743: REM HI SCORE MUSIC
```

and for the game cheat:

```
POKE 40285,76:POKE 40286,35:POKE
40287,153: SYS 24882
```

Now the *Z* cheat (you need a reset switch):

Shift/Runstop to load. Then reset the game and enter the poke:

```
POKE 2391, n (n is level 1-255)
SYS 2304 to start.
```

Sincere apologies to all who looked in vain for last week's Willy program. Here it is now.

```
   10REM JET SET WILLY CHEET PROGRAM
   20REM BY ANDY ROBERTS AUGUST 1984
   30
   40CLS:#TAPE
   50P%=&900:LOPTO
   60LDX#&4A:LDY#9:JSR&FFF7
   70LDA#&EA:STA&D21:STA&D22:STA&1930:STA&1931:STA&1884:STA&1885:STA&1BA3:STA&1B
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   90LDX#&4E:LDY#9:JSR&FFF7
  100LDA#1:STA&2F:LDA#10:STA&30
  110JMP&5F5B:]
  120M&946=*L.JSW1**CHR#13+CHR#0
  130M&94E=*L.JSW1.5**CHR#13+CHR#0
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  210CALL&900
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Charts

Top Twenty

1	(1)	Speed King	Mastertronic
2	(2)	Thrust	Firebird
3	(5)	ACE	Cascade
4	(3)	Ghosts and Goblins	Elite
5	(4)	Ninja Master	Firebird
6	(–)	Ninja	Mastertronic
7	(–)	Hole in One	Mastertronic
8	(7)	Green Beret	Imagine
9	(6)	Dragons Lair	Software Projects
10	(16)	Molecule Man	Mastertronic
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Light Force – FTL in action

Gargoyle goes arcade crazy with FTL – John Cook *reports*

There were once a couple of programmers called Greg Follis and Roy Carter who thought they'd try their hands at writing an arcade game for the Spectrum.

They called it *Ad Astra* and teamed up with an old friend, Ted Heathcote, to do the marketing (voted Dudley's Best Dressed Man 1957). Then they called themselves Gargoyle Games.

Encouraged by its success, they decided to try another game, this time more of an adventure, called *Tir Na Nog*.

Two years, several games and much critical acclaim later, the Follis/Carter duo are acknowledged masters of the adventure/puzzle type program, but at last have returned to their first love, arcade games, in the shape of FTL – Faster Than Light – Gargoyle's new label.

Why the change of direction? Greg puts it down to three main reasons.

"Firstly, blatant economics – a good adventure takes five months to write. In that time you can produce two or three fairly good arcade games . . . not to decry them in any way. You just don't have to think up the scenario or puzzles!

"Secondly, you can become stereotyped in the manner in which you produce games; in our case, variations of a walking man. We wanted to get out of that. Lastly, we all wanted a bit of fun – and producing FTL has been thoroughly enjoyable!"

Fair enough, but why a new name, and why FTL?

"Gargoyle is thoroughly associated with adventures. When we produced *Sweevo's World* under the Gargoyle name – even though we called it a Special Edition, I think many people didn't buy it because they were expecting an adventure. There's a strong brand identification.

"Faster Than Light was going to be the name of the game – but I thought it was too good to waste."

The three games that are presently knocked up for release are *Light Force*, *Shockway Rider* and *Samurai Dawn*. Other titles that never made it to become a full blown game include *Chrome Gnome*, *Wombat Combat* and *Platinum Pixie*.

> *"FASTER THAN LIGHT was going to be the name of the game but I thought it was too good to waste"*

The common link is the technique the team have named 'Lasermation'. Lasermation? "It applies particularly to the Spectrum," came the reply. "We wanted to produce brightly coloured, multi-coloured games without attribute problems. In the past we've avoided trouble with attributes by using single colours."

Light Force is the first example of this FTL technique – and as you can see, it is not single coloured. Quite simply, *Light Force* contains the best graphics on a Spectrum arcade game to date – colourful, bags of fast action, and not an attribute problem in sight. How was it done? No magic involved, just a combination of careful design and programming. Quite simply, when an attribute slip occurs, different sprites are used to compensate for this. It's very effective.

Light Force itself is a game based in the same time-line as the previous Gargoyle 'Siege of Earth' trilogy. The system of Regulus has been occupied by aliens – and you pilot a ship of the Light Force, the punishment arm of the Galactic Fighter Command, and move in to take them out. It consists of five planets, or levels (the pictures are taken from the first jungle planet) and it's an out and out shoot 'em up.

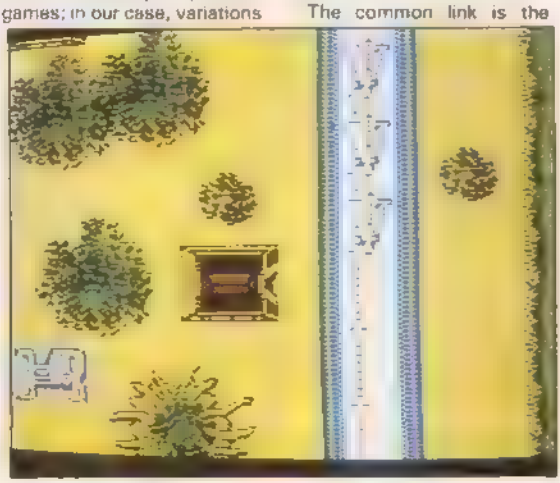
The screen smoothly scrolls vertically downwards – as you are attacked by wave upon wave of multi-coloured alien ships.

While blasting away at the aliens, you get extra points or extra lives for zapping the ground emplacements – while the final enemy at the end of each level requires an extra weapon you may . . . or may not . . . have picked up on the way through.

The other levels change the graphics, ("the cyan looks particularly nice on the ice planet" – Greg), and vary the alien tactics, but in essence it's blast, blast, fire, maim, kill, etc.

With music routines courtesy of Mark Alexander (*Wham – The Music Box* and *Fairlight*), the result should be a frenetic combination of sound, graphics and all-action mayhem. Out late September, £7.95 Spectrum, £8.95 CPC and Commodore.

Meanwhile, other FTL titles, *Shockway Rider* and *Samurai Dawn* are already under development. More on *Shockway* next week but of *Samurai Dawn*, Greg says, "It's going to be terribly bloodthirsty – decapitations, heads falling off in fountains of blood – Someone will probably want to ban it."



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Trivial Pursuit

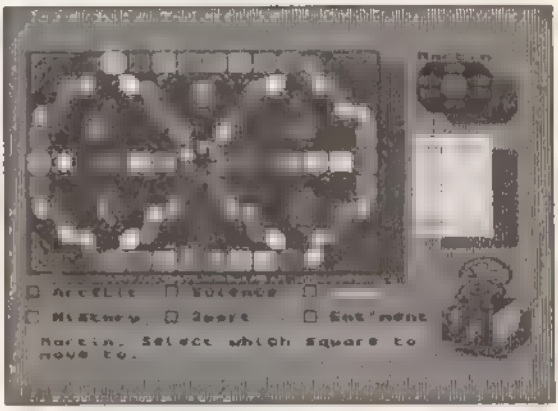
Trivial Pursuit has now appeared in so many forms that it was only inevitable that sooner or later a computer version would appear. And curiously appropriate, too, that it would be that arch-marketing duo, Domark, which produced it.

Most board games translate badly on to the micro, losing their speed and immediacy, with the board and playing pieces often crudely portrayed. Happily, Domark's *Trivial Pursuit* avoids most of these pitfalls, with the exception of TP, an irritating little character who appears on screen to throw your dice (or dart in this case) and then select a question for you. Thankfully, TP can be switched off.

About a third of the questions on the micro version are duplicates of questions from the Genus edition of TP. The rest are new – some are even home computing related – and if you get through all the ones supplied on the game cassette, there's a second cassette devoted to extra questions in the package.

The best feature of TP on the micro is that audio and visual questions, which couldn't be represented in the board game, are offered. For instance, the micro will play a snatch from Mad Dogs and Englishmen, to accompany the question "Who go out in the midday sun?". Lord knows what this sounds like on the Spectrum Plus, but it's fine on the Commodore.

It's designed very much as a multi-player game – unlike many computerised board games where you play against the computer. Since the micro (or TP, if you've still got it switched on) comes up with the answer to the question after a time interval which you set at the beginning of the game, and then asks if you got it right or not, it's probably too tempting to cheat if you're playing on your own.



In pursuit of the yuppily trivial . . .

Some extra features are also incorporated; for example, you can check on your best and worst subjects by calling up a statistical analysis of your performance.

Generally, ODE, the programming team, has translated *Trivial Pursuit* very well. I'm not convinced that it's worth buying if you already have the original board game, but who knows? It may become even more yuppie than the real thing.

Popular appeal ♦♦♦

Christina Erskine

Program *Trivial Pursuit* **Price** £14.96 **Micros** Commodore 64, Spectrum, Amstrad CPCs, BBC B **Supplier** Domark, 204 Worple Road, London SW20 8PN.

No gold medals for this Olympiad

What have weight lifting, the 100 metre sprint, skeet shooting, canoeing and the discus got in common? Correct, they're things you have to be good at to star in a Milk Tray advert. By sheer coincidence, they are the events found in Atlantis's *Olympiad '86*.

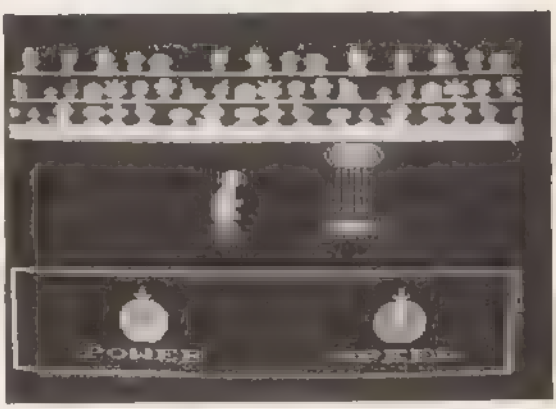
This game's got budget written all over it, from the arthritic sprinter (100 dash) to the flying plimsoll (discus) – but despite this *Olympiad '86* really isn't so bad.

None of the events are straightforward joystick waggers; it's usually a case of timing the sweep of an arrow around a clockface to either increase speed/power although the shooting and canoeing events need a little more concentration.

Despite the naff graphics, the game had enough appeal to warrant several goes before boredom set in.

Popular appeal ♦♦♦

John Cook



Program *Olympiad '86* **Micro** Amstrad **Price** £2.99 **Supplier** Atlantis Software, 28 Station Road, London SE25 5AG.

Slogging along with the captain

There's something a bit blue about this game. No, not that . . . just that it's a search for blueprints, spread out around a maze of screens. Pity, because a bit of rudery might have cheered up yet another dodge, shoot and collect game.

Actually, I'm getting a bit worried about the way my reactions to these tasks mirror those of the characters I'm controlling. "Captain Slog had that sinking feeling," says the blurb. Well, so did I. I was almost moved to cry, "Not another one!"

For those who must have another one (this time it's with wandering robots and pass cards to barriers), then go ahead and blow the right royal sum of £1.99 on *Captain Slog*. There's nothing wrong with it, other than absence of imagination.

But if you do buy it, please give the penny change to some worthy concern – like the Society for Computer Games Reviewers Driven to Distraction by Reviewing Games Like This!

Popular Appeal ♦♦

John Minson

Program *Captain Slog* **Micro** Spectrum 48K **Price** £1.99 **Supplier** Alpha-Omega, CRL House, 9 Kings Yard, Carpenters Road, London E15 3HD.

Another way to armchair football

I'm not sure how to start this review, because I know you ■ know how popular American football has become over here. And I know you all know that it's all because of Channel 4. And I know you all know that tens of thousands of Brits went along to Wembley recently to watch the Bears maul the Cowboys.

So I'm not going to say any of that.

What I will say is that here's another version of the world's greatest game for your computer. What makes this one notable is that it's from Addictive Games, which brought you the magnificent *Football Manager*. In keeping with the earlier offering, this one is a management simulator, too, hence the title *Head Coach*.

It shares a lot of features with *Football Manager*. You have to play a full season, you can trade players (no transfer fees in American football), pick your strongest team, and control tactics during the game. At the end of each week there's a list of all results ■ the AFC and NFC, together with the league tables.

You also have to keep track of players' fitness, and cope with injury problems and players going out of form. So far so great. But the graphics and screen displays are nothing to go wild about, and the sound is non-existent.

Even worse, the programmers have monkeyed around with the game of American football such that it bears very little resemblance to the real game.

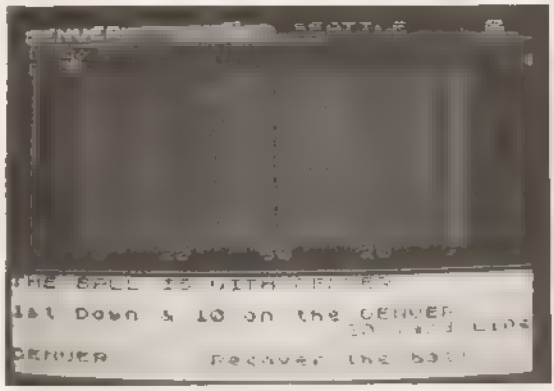
For example, you only get two downs to make ten yards (tsk, tsk!) and you can't punt (yes, it's ridiculous, isn't it?).

The other major objection I have is in dealing with injured players. For example, you must play five offensive linemen. If you only have four fit players, you must field a ten-man team. Surely it wouldn't have been difficult to allow a player from another position to make up the numbers but at a reduced skill level?

Apart from these radical alterations to the rules of the game, *Head Coach* is an enjoyable way to spend an afternoon. Could have been better, though.

Popular appeal ♦♦♦

Peter Worlock



Wanna play football for the coach

Program *Head Coach* **Micro** Spectrum **Price** £9.95 **Supplier** Addictive Games, 10 Albert Road, Bournemouth, Dorset BH1 1BZ.

Dynamite Dan takes on the world

The youth of the world are having their brains sucked dry by corrupted pop records and only Dynamite Dan can put a stop to it. Agent Dan must find the one record on each of the eight islands belonging to his arch enemy Blitzen, locate a jukebox, then play the record (eh?). Once at the final island you must place a bomb in Blitzen's lab and run for your Zeppelin before the plant goes up.

So much for the plot, what about the graphics? Well, they're not bad, in fact they are quite well designed to avoid colour attribute problems. It's just that they're so ordinary looking.

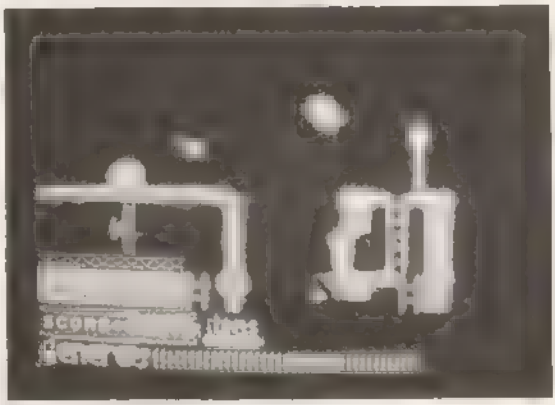
Dan ■ a bland blue blob, averagely animated and the rest of the objects and enemies whom he must avoid are equally uninspiring. Sound effects are reasonable, considering it's a Spectrum they're coming out of, without being earth-shattering.

As a game it's ■ case of dodge the wandering nasties and collect the various objects whilst bombing doors. Fuel must also be located for your Zeppelin ■ order to fly off to the next island. It's possible ■ leap over some of the floating health hazards, but ■ becomes quite frustrating at times when something heads towards you at ■ height where you can't possibly avoid it.

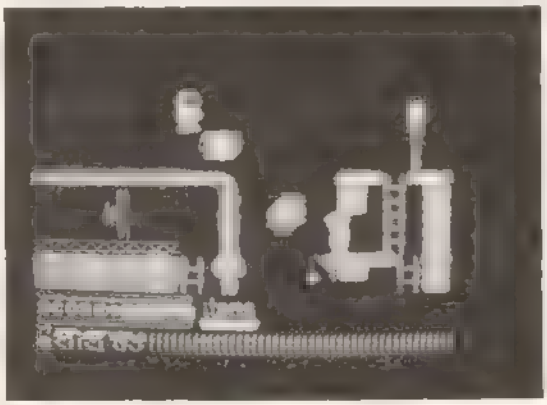
Compared to, say, *Dan Dare*, *Dynamite Dan* comes off looking very dated and dull. It's not bad, but is that enough to warrant paying for it?

Popular appeal ♦♦♦

Duncan Evans



Not-so-dynamite Dan



Dan "the bland blue blob"

Program *Dynamite Dan* **Micro** Spectrum **Price** £7.95 **Supplier** Mirrorsoft, Purnell Book Centre, Paulton, Bristol BS18 5LQ.

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New jewels from Level 9

Tony Bridge on Infocom's Hitch Hikers' Guide, and what Level 9 has been up to recently

Last week, we promised some tips for one of the all-time classic adventures: *Hitch Hikers' Guide to the Galaxy*.

There are one or two classic problems in this program, the Babel Fish being the first encountered, and the Intelligence-screening door the second. The key to the door problem is that you must be carrying both "tea" and "no tea"

The key to the door problem (it's a pun) is that you must be carrying both 'tea' and 'no tea'. At some point in the proceedings, try *Drink no Tea*: the program will tell you that your common sense tells you that you can't do this.

Now, nothing can happen until you've visited the maze – remembering that you have just been transported back from the microscopic star fleet, you may not be surprised to know that you are now in a brain.

The other day the Grand Elf received a curious letter from Pete Austin of Level 9 on the subject of its in-house adventure-writing utility, comparing it to Incentive's *Graphic Adventure Creator*. "*GAC* seems quite a good product and has been getting some clever marketing of late. Indeed, some people may even have gained the impression that it is equivalent to Level 9's adventure system. Normally, it is not Level 9's policy to comment on such comparisons . . ." starts the letter. Pete then goes into some detail on several points, including memory use (*GAC* being proved to be rather extravagant in this regard) and graphics (again, *GAC* is proved to be very inefficient in memory terms while drawing pictures).

His main theme is that, although *GAC* pictures are very pretty, they soak up an inordinate amount of memory, memory which Level 9 feels is put to better use in constructing puzzles and evocative atmosphere in text. Pete maintains that his company could include equally impressive pictures in their games. Personally, I'm not a fan of Level 9's pictures – they have a certain charm, but are rather like a Victorian wall frieze: occasionally you will look up to see a pleasant pattern above the important business, but the end result is mere decoration

Yes, *GAC* pictures as included in the demo program with the utility (a program designed to show off what is, after all, a *graphic* utility) are detailed and very fetching, but eventually adventure-writers will apply their imagination to *GAC* and produce worthwhile adventures, as we have seen happen with Gilsoft's *Quill*.

Graphics might then be used for pictorial inventories, digital countdowns and so on. Under development is a disc update for *GAC*, which will allow disc access during play; although the utility doesn't support Ram save or "multi-tasking" as yet, I'm sure that these too will be on the cards. When support modules eventually arrive, the utility will be even more attractive.

I don't know who those "some people" might be who think that *GAC* is even remotely similar to Level 9's A system, but their number certainly doesn't include me, nor Incentive itself.

Pete Austin is one of the nicest people in adventuring, and I can't imagine what he means by all this (it is rather like the MD of Rolls-Royce having a go at the kit car manufacturer next door) – if he is worried about adventure-writing utilities taking away some custom, then why has he and Level 9 completely ignored *The Quill* since its release?

If he is worried about the pretty pictures, then he must either stick to his guns and keep graphics to the minimum (as he does at the moment) or put much more into them. There is surely room for everyone in the adventure world, and Level 9 certainly has nothing to fear from *GAC* or *The Quill*.

However, I'm glad to say that Level 9 hasn't spent all its time writing letters to reviewers. As you'll be aware, Level 9 has recently joined forces with Rainbird to release the Middle Earth trilogy in one package. Called *Jewels of Darkness*, it consists of the first three adventures by Level 9: essentially, the storylines remain the same, but now with added graphics. Though there is a resulting constriction on text in the smaller micros (the package is available for just about everything from the Spectrum 48 to the mighty Amiga and IBM-PC), there is included a "no graphics" version, which allows for more text.

The three individual stories, always part of the same mythology (you could, for example, sometimes gain a glimpse of the scenery of another part) are now finally linked, and you may work your way up through the three parts to become a supreme adventurer.

The main difference, while playing, comes from expertise that Level 9 has brought to the medium over the years since the games first saw light. Multi-tasking, Ram save and the new *Oops* command (which takes back the last command and not as I hinted a couple of weeks ago, anything like Infocom's *Oops* which allows for re-editing of a previous command) makes for very fast progress.

I had hoped that pictures of *Colossal Adventure*, *Adventure Quest* and (my favourite) *Dungeon Adventure* might open a new dimension on these well-loved games, but I'm afraid that they are exactly the same as usual, although you can switch them off.

So, if you already have the Middle Earth Trilogy, you don't need to re-invest unless you want a few pictures and a related novel. But the wide range of machines catered for now means that everybody can now get to see these wonderful adventures and marvel at Level 9's genius.

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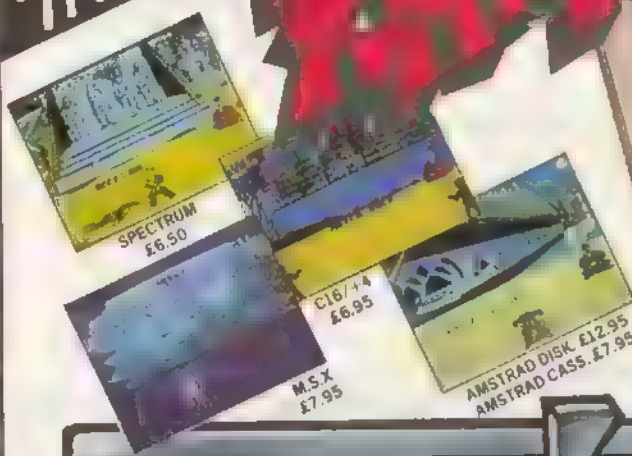

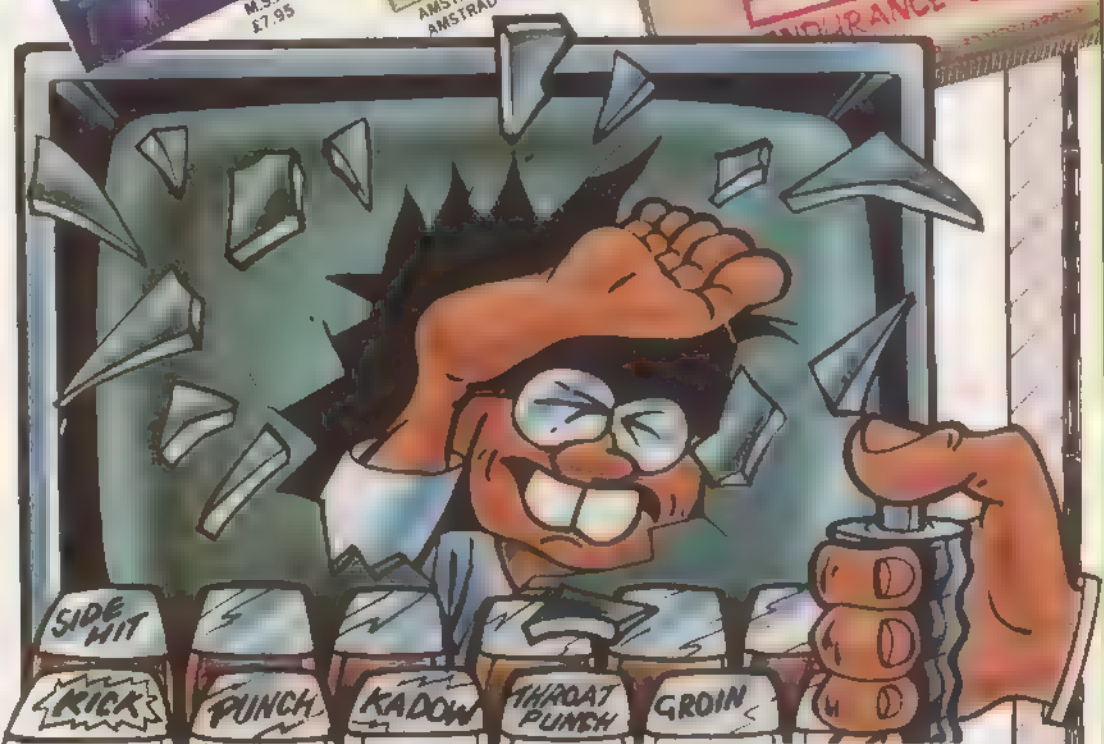

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Inter-Music

by C. Yau

If you've ever wanted to have music playing in the background in your games then this interrupt driven music program is for you.

The program has three options:

1/ Input tune. Tunes are inputted by first entering the duration and then the pitch. The values for these correspond exactly to those used by the *Beep* command. For best results a duration of between 0.2 and 0.02 is recommended whilst a value of zero exits this option.

2/ Play tune. Plays the tune currently in memory.

3/ Save tune. This option saves your tune as a complete self running machine code program. The next time you want your tune to play use *Clear 33012: Load ""Code* to load it in and *Randomize Usr 33013* to start it. *Randomize Usr 33020* will stop the tune.

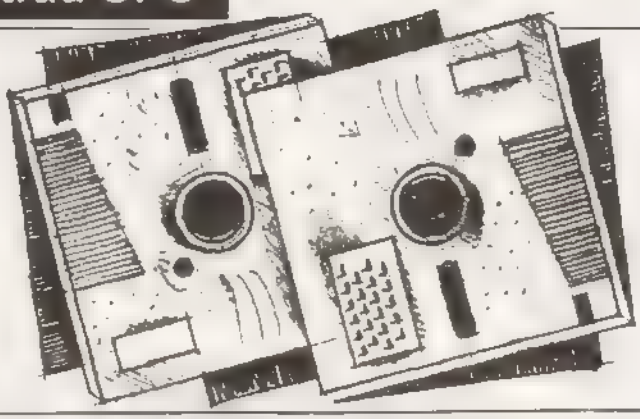
For any readers who feel unable to type the listing send £1.50 to C. Yau, 39 Delancey Street, London NW1 7RX.

```
  5 CLEAR 33012
  6 LET TOT=0
 10 FOR F=33013 TO 33107
 20 READ A
 25 LET TOT=TOT+A
 30 POKE F,A
 40 NEXT F
 50 IF TOT<>11527 THEN  PRINT "ERROR IN
DATA": BEEP .1,0: STOP

 99 REM ****MAIN MENU****
100 POKE 23658,8
101 POKE 23609,30
104 CLS
105 PRINT AT 2,10;"**INTER-MUSIC**"
109 PRINT AT 4,10;"WRITTEN BY C.YAU"
110 PRINT AT 10,10;"1....INPUT TUNE"
120 PRINT AT 12,10;"2....PLAY  TUNE"
130 PRINT AT 14,10;"3....SAVE  TUNE"
140 LET A$=INKEY$
150 IF A$="" THEN  GO TO 140
160 IF A$="1" THEN  GO SUB 1000
170 IF A$="2" THEN  GO SUB 2000
180 IF A$="3" THEN  SUB 3000
190 GO TO 100
1000 REM ****INPUT TUNE****
1005 BEEP .1,5
1010 CLS
1011 LET ADDR=33108
1015 LET NO=0
1020 PRINT AT 0,10;"INPUT   TUNE"
1030 PRINT AT 21,0;"ENTER 0 FOR DURATION
 TO END"
1035 PRINT AT 10,5;"SIZE OF TUNE IN BYTE
S : ";95+(NO*4)
1060 PRINT AT 12,5;"NO. OF NOTES IN TUNE
  : ";NO
1065 LET NO=NO+1
1070 INPUT "DURATION : ";DUR
1075 IF DUR=0 THEN  POKE ADDR,0: POKE AD
DR+1,0: POKE ADDR+2,0: POKE ADDR+3,0: RE
TURN
1080 INPUT "PITCH    : ";PIT
1090 LET FREQ=261.63*2^(PIT/12)
1100 LET DE=INT (FREQ*DUR)
1110 LET HL=INT (437500/INT FREQ-30.125)
1120 LET D=INT (DE/256)
1130 LET E=DE-D*256
1140 LET H=INT (HL/256)
1150 LET L=HL-H*256
1160 POKE ADDR,L
1170 POKE ADDR+1,H
1180 POKE ADDR+2,E
1190 POKE ADDR+3,D
1200 LET ADDR=ADDR+4
1900 GO TO 1035
2000 REM ****PLAY TUNE****
2001 POKE 33105,84
2002 POKE 33106,129
2003 POKE 33107,6
2010 BEEP .1,5
2020 CLS
2030 PRINT AT 10,10;"PLAYING TUNE"
2035 RANDOMIZE USR 33013
2040 PRINT AT 21,3;"PRESS ANY KEY FOR MA
IN MENU"
2050 IF INKEY$="" THEN  GO TO 2050
2060 RANDOMIZE USR 33020
2999 RETURN
3000 REM ****SAVE TUNE****
3010 BEEP .1,5
3011 CLS
3012 PRINT AT 0,10;"SAVE   TUNE"
3015 PRINT AT 21,0;"NAME OF TUNE (MAX 10
 CHAR) : "
3020 INPUT A$
3025 CLS
3030 PRINT AT 10,5;"SAVING ";A$
3035 PRINT AT 12,5;"START ADDR IS     :
33013"
3037 PRINT AT 14,5;"LENGTH OF CODE IS :
";95+(NO*4)
3040 SAVE A$CODE 33013,95+(NO*4)
3050 CLS
3060 PRINT AT 10,3;"REWIND TAPE TO VERIF
Y CODE"
3070 VERIFY ""CODE
3999 RETURN
9000 DATA 62,128,237,71,237,94,201,237
9010 DATA 70,201,1,129,245,197,213,229
9020 DATA 221,229,58,83,129,61,50,83
9030 DATA 129,254,0,204,27,129,221,225
9040 DATA 225,209,193,241,255,201,42,81
9050 DATA 129,58,82,129,103,78,35,70
9060 DATA 35,94,35,86,35,125,50,81
9070 DATA 129,124,50,82,129,123,254,0
9080 DATA 204,68,129,200,96,105,205,181
9090 DATA 3,62,6,50,83,129,201,122
9100 DATA 254,0,192,33,81,129,54,84
9110 DATA 35,54,129,201,84,129,6,0
```

Xen

by Simon Goodwin



Xen is a basic extension program that utilises the RSX feature in providing 34 extra commands to Locomotive Basic whilst using only 2K of memory.

All the commands except *:Progten* are compatible with the CPC464, 664 and 6128 micros.

Type in the basic program and save it. Then, run it and if an error message appears check over the data. Once correctly entered the message 'Xen activated' will appear.

The commands and explanations follows.

:Hload,start address, length and *:Hsave,start address, length* allow the saving and loading of programs as headerless files.

:Zipon and *:Zipoff* set the cassette baud rate to 3000 and return it to normal respectively.

:Mon and *:Moff* switch the cassette motor on and off.

:Header displays the header of a cassette file.

:Char,x,y,@n% returns the character at text co-ordinates x, y in n%.

:Fillbox,left col, right col, top row, bottom row, pixel mask allows the filling of a defined rightangle with any pattern in any colour.

:Frame synchronises the screen display with display interrupts allowing much smoother graphics to be printed.

:Cursoron and *:Cursoroff* allow the text cursor to be used in basic programs.

:Inverse swaps the pen and paper values.

:Reset resets the screen mode, pens, inks, paper and border colours.

:Lscreen, :Rscreen, :Uscreen and *:Dscreen* scroll the screen left, right, up and down.

:Shiftcls performs a spectacular CLS in any mode.

:Xor turns on the graphics Xor function allowing graphics to be moved across the screen without destroying the background.

The rest of the commands and the listing will be published next week.

```
20 sum=0
30 FOR n=41000 TO 42444:READ a:POKE n,a:
sum=sum+a:NEXT
40 IF sum<>164185 THEN PRINT "ERROR:CHEC
K DATA STATEMENTS":END
50 CALL 41000:CLS:PRINT "XEN ACTIVATED":
DELETE 10-320: END
60 DATA 0, 0, 0, 0, 1, 54, 160, 33, 40,
160, 205, 209, 188, 201, 158, 160, 195,
2, 165, 195, 6, 165, 195, 10, 165, 195,
19, 165, 195, 182, 163, 195, 164, 163, 1
95, 200, 163, 195, 110, 163, 195, 123, 1
63, 195, 75, 163, 195, 94, 163, 195, 54,
 163
70 DATA 195, 67, 163, 195, 43, 163, 195,
 13, 163, 195, 36, 163, 195, 181, 162, 1
95, 162, 162, 195, 166, 162, 195, 158, 1
62, 195, 137, 162, 195, 110, 162, 195, 8
0, 162, 195, 86, 162, 195, 92, 162, 195,
 101, 162, 195, 185, 165, 195, 76, 162,
195, 64
80 DATA 162, 195, 72, 162, 195, 30, 162,
 195, 159, 161, 195, 231, 161, 195, 94,
161,  77, 79, 206, 77, 79, 70, 198, 90,
 73, 80, 79, 206, 90, 73, 80, 79, 70, 19
8, 72, 83, 65, 86, 197, 72, 76, 79, 65,
196, 72, 69, 65, 68, 69, 210, 80, 82, 79
, 206
90 DATA 80, 82, 79, 70, 198, 68, 69, 69,
 203, 68, 79, 75, 197, 89, 82, 79, 71, 7
6, 69,  206, 70, 76, 85, 83, 200, 75, 69
, 217, 67, 72, 65, 210, 82, 69, 83, 69,
212, 72, 69, 76, 209, 67, 85, 82, 83, 79
, 82, 79, 206, 67, 85, 82, 83, 79, 82, 7
9, 70
100 DATA 198, 70, 82, 65, 77, 197, 83, 7
2, 79, 70, 212, 73, 78, 86, 69, 82, 83,
197, 68, 83, 67, 82, 79, 76, 204, 85, 83
, 67, 82, 79, 76, 204, 82, 83, 67, 82, 7
9, 76,  204, 76, 83, 67, 82, 79, 76, 20
4, 83, 72, 73, 70, 84, 67, 76, 211, 87,
65,  73
110 DATA 84, 75, 69, 217, 69, 73, 83, 65
, 66, 76, 197, 69, 78, 65, 66, 76, 197,
65, 83,  67, 73, 201, 82, 79, 213, 70, 7
3, 76, 76, 66, 79, 216, 82, 79, 77, 80,
69, 69,  203, 255, 221, 126, 4, 254, 0,
40, 5, 221, 126, 4, 254, 1, 40, 26, 201,
243
120 DATA 205, 6, 185, 221, 110, 2, 221,
102, 3, 221, 94, 0, 221, 86, 1, 126, 245
, 205, 9, 185, 241, 18, 251, 201, 243, 2
05, 0, 185, 221, 110, 2, 221, 102, 3, 22
1, 94, 0, 221, 86, 1, 126, 245, 205, 3,
185, 241, 18, 251, 201, 62, 22, 205, 90,
187, 62
130 DATA 1, 205, 90, 187, 201, 33, 69, 7
8, 32, 65, 109, 115, 116, 114, 97, 100,
32, 65, 77, 115, 105, 99, 32, 69, 120, 1
16, 101, 110, 115, 105, 111, 110, 40, 99
, 41,  32, 83, 105, 109, 111, 110, 32,
71, 111, 111, 100, 119, 105, 110, 32, 49
, 57
140 DATA 56, 54, 0, 0, 0, 0, 126, 205, 9
9, 187, 25, 16, 249, 201, 221, 102, 9, 1
24, 61,  50, 219, 161, 221, 86, 6, 122,
60, 50, 220, 161, 221, 110, 4, 125, 61,
50, 221, 161, 221, 94, 2, 123, 61, 50, 2
22, 161, 58, 219, 161, 103, 58, 220, 161
, 87, 58
150 DATA 221, 161, 111, 58, 222, 161, 95
, 221, 126, 0, 205, 60, 188, 201, 221, 1
10, 2, 221, 102, 3, 221, 78, 0, 221, 70
, 1, 126, 254, 32, 48, 7, 62, 46, 205, 9
0, 187, 24, 3, 205, 90, 187, 120, 177, 3
5, 11, 32, 235, 201, 17, 7, 162, 205, 6
9, 187
160 DATA 201, 201, 205, 72, 187, 201, 20
5, 6, 187, 201, 6, 0, 205, 77, 188, 201,
 6, 209, 205, 77, 188, 201, 205, 11, 188
, 43, 43, 205, 5, 188, 201, 205, 11, 188
, 35, 35, 205, 5, 188, 201, 205, 147, 18
7, 50, 135, 162, 205, 153, 187, 50, 136,
 162, 58
170 DATA 135, 162, 205, 150, 187, 58, 13
6, 162, 205, 144, 187, 201, 0, 0, 221, 1
10, 4,  221, 102, 5, 221, 94, 2, 221, 86
, 3, 221, 78, 0, 221, 70, 1, 237, 176, 2
01, 205, 25, 189, 201, 205, 129, 187, 20
1, 205, 132, 187, 201, 62, 13, 205, 90,
187, 62
180 DATA 10, 205, 90, 187, 201, 33, 170,
 161, 6, 27, 205, 223, 161, 205, 170, 16
2, 33,  197, 161, 6, 24, 205, 220, 161,
205, 170, 162, 205, 170, 162, 33, 158, 1
69, 229, 213, 197, 205, 3, 163, 193, 209
, 225, 62, 0, 50, 2, 163, 126, 254, 255,
 40, 29
190 DATA 254, 91, 56, 9, 245, 62, 1, 50,
 2, 163, 241, 214, 128, 205, 90, 187, 58
, 2,  163, 254, 1, 32, 3, 205, 170, 162
, 35, 24, 208, 201, 0, 62, 66, 205, 30,
187,  200, 205, 6, 187, 201, 221, 126,
4, 205, 111, 187, 221, 126, 2, 205, 114
, 187
```

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Mushroom Mania

by Jonathan Temple

Mushroom Mania is an arcade style game based on Centipede in which you must defend your mushroom patch from an assortment of enemies.

During the game you will come across a mushroom laying spider, a killer flea, and a fast moving snail as well as the centipede itself. The centipede must not be allowed to reach the bottom of the screen or run into a poisoned mushroom laid by the snail or you will lose a life.

The game is a combination of Basic and machine code and will be published over two weeks.

```
>
  40 *TV 255
  50 ON ERROR GOTO 2800
  60 MODE 1
  70 PROCchars
  80 PROCenvs
  90 PROCinit
 100 PROCinfo
 110 PROCtitles
 120 REPEAT
 130 SX=0:LX=3:JX=1
 140 REPEAT
 150 PROCscreen
 160 REPEAT
 170 FOR N=0 TO UX*5:NEXT
 180 TX=TX EOR 1:IF TX CALL centipede
 190 ON EX+1 GOSUB 530,560,620,700
 200 PROCspray:IF WX>1 PROCfire
 210 UNTIL FX
 220 IF FX=29 SOUND 16,2,6,6:LX=LX-1:TI
ME=0:REPEAT UNTIL TIME>200 ELSE PROCbonu
s
 230 UNTIL LX=0
 240 PROCtitles
 250 UNTIL FALSE
 260 END
 280 DEFPROCspray
 290 NX=XX:COLOUR 2
 300 XX=XX+(INKEY-98 AND XX<0)-(INKEY-6
7 AND XX<39)
 310 IF XX<>NX VDU 31,NX,30,32,31,XX,30
,239
 320 IF INKEY-74 IF WX=1 VX=XX:WX=29:SO
UND 17,1,200,3
 330 ENDPROC
 350 DEFPROCfire
 360 VDU31,VX,WX:CALL store
 370 IF CX>32 PROChit
 380 IF WX>1 VDU 32:WX=WX-1
 390 VDU31,VX,WX:CALL store
 400 IF CX>32 PROChit
 410 IF WX>1 VDU 234
 420 ENDPROC
 440 DEFPROChit
 450 IF CX=128 VDU 32:WX=1:PROCscore(5)
:SOUND 16,-12,6,2
 460 IF CX>128 IF CX<132 VDU 31,AX*2X,B
X*2X,32:WX=1:PROCscore(50):SOUND 18,5,10
0,3:ZX=ZX-1:IF ZX=0 FX=TRUE
 470 IF CX<131 IF CX<134 VDU 31,BX,RX,3
2,32:WX=1:EX=0:PROCscore(150):SOUND 19,6
,125,20
 480 IF CX>133 IF CX<127 VDU 31,BX,RX,3
2,32,32:WX=1:EX=0:PROCscore(50):SOUND 19
,5,75,6
 490 IF CX<139 VDU 32:WX=1:PROCscore(20
):SOUND 17,-15,6,2
 500 IF CX<140 VDU 32:WX=1:EX=0:PROCsco
re:200):SOUND 19,2,120,6
 510 ENDPROC
 530 IF RND(100)<JX*2 PROCsetup
 540 RETURN
 560 VDU 17,2,31,BX,RX
 570 IF RND(25)=1 VDU 17,2,235:SOUND 16
,-12,4,2 ELSE VDU 32
 580 BX=BX+1:CALL psnail
 590 IF BX=38 OR EX=0 VDU 31,BX,RX,32,3
2:EX=0
 600 RETURN
 620 VDU 31,BX,RX:IF RND(2)=1 IF RX<29
IF RX>1 VDU 17,1,224,32,224 ELSE VDU 32,
32,32
 630 RX=RX+1:VDU 17,2,31,BX,RX
 640 IF RX<30 CALL pspider:IF EX RETURN
 650 IF EX=0 VDU 31,BX,RX,32,32,32
 660 SOUND 19,0,0,0:EX=0
 670 IF RX=30 IF ABS(BX+1-XX)<2 FX=29
 680 RETURN
 700 VDU 31,BX,RX,32,17,2
 710 BX=BX+SGN(XX-BX):RX=RX+1
 720 VDU 31,BX,RX
 730 IF RX<30 VDU 236:RETURN
 740 SOUND 19,0,0,0:EX=0
 750 IF BX=XX FX=29:VDU 236
 760 RETURN
 780 DEFPROCsetup
 790 EX=RND(2-(JX>1))
 800 IF EX=1 BX=0:RX=RND(27)+1:VDU 31,B
X,RX,228,229:SOUND 19,3,100,9
 810 IF EX=2 BX=RND(38)-1:RX=1:VDU 31,B
X,RX,230,231,232:SOUND 19,4,175,1
 820 IF EX=3 BX=RND(38)-1:RX=1:VDU 31,B
X,RX,236:SOUND 19,4,250,1
 830 ENDPROC
 850 DEFPROCscore(NX)
 860 SX=SX+NX
 870 PRINTTAB(6,0);LEFT$("000000",6-LEN
(STR$(SX)))+STR$(SX)
 880 ENDPROC
 790 EX=RND(2-(JX>1))
 800 IF EX=1 BX=0:RX=RND(27)+1:VDU 31,B
X,RX,228,229:SOUND 19,3,100,9
 810 IF EX=2 BX=RND(38)-1:RX=1:VDU 31,B
X,RX,230,231,232:SOUND 19,4,175,1
 820 IF EX=3 BX=RND(38)-1:RX=1:VDU 31,B
X,RX,236:SOUND 19,4,250,1
 830 ENDPROC
 850 DEFPROCscore(NX)
 860 SX=SX+NX
 870 PRINTTAB(6,0);LEFT$("000000",6-LEN
(STR$(SX)))+STR$(SX)
 880 ENDPROC
 900 DEFPROCbonus
 910 JX=JX+1:IF JX=2 LX=LX+1
 920 FOR NX=1 TO (300+JX*100) DIV 25
 930 PROCscore(25):SOUND 0,-10,5,1
 940 FOR D=1 TO 50:NEXT,
 950 ENDPROC
 970 DEFPROCscreen
 980 VDU 12,17,1:TX=YX
 990 DX=1:ZX=5+JX*5:IF ZX>35 ZX=35
1000 RESTORE 1240:KX=((JX-1) MOD 5)+1
1010 FOR NX=1 TO KX:READ M,C:NEXT
1020 VDU 19,1,M;0;19,3,C;0;
1030 FOR KX=&3000 TO &3280 STEP 16
1040 FOR NX=1 TO 3
1050 NX?&70=(RND(27)+2)*3-3
1060 IF RND(8)<JX+4 GX?(NX?&70)=224
1070 NEXT
1080 ?&350=KX:?&351=KX DIV 256:*FX 19
1090 VDU 23;12,KX DIV 2048;0;0;0;23;13,
KX DIV &;0;0;0;
1100 PRINTTAB(39,0) &GX
1110 FOR NX=1 TO 3
1120 GX?(NX*&70)=32:NEXT,
1130 COLOUR 3
1140 FOR NX=2 TO ZX:AX=NX+ZX-NX:GX=NX*2
1150 VDU 31,NX,0,2,226:NEXT
1160 AX=1=ZX-1:BX=1=2:VDU 31,ZX-1,2,227
1170 COLOUR 2:PRINTTAB(0,0);"SCORE:"
1180 PROCscore(0)
1190 PRINTTAB(17,0);"LIVES:";STRING$(LX
-1," "CHR$232);TAB(31,0);"SCREEN:";JX
1200 WX=29:WX=1:EX=0:FX=FALSE
1210 VDU 31,XX,30,233
1220 ENDPROC
```

— continued on page 48 —

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```
1240 DATA 1,5,2,6,4,1,5,3,6,4
1250 [illegible]
1270 [illegible]
1280 [illegible]
1290 [illegible]
1300 [illegible]
1310 [illegible]
1320 [illegible]
1330 [illegible]
1340 [illegible]
1350 [illegible]
1360 [illegible]
1370 [illegible]
1380 [illegible]
1390 [illegible]
1400 [illegible]
1410 [illegible]
1420 [illegible]
1430 [illegible]
```

```
1440 LDA #$22:JSR osword
1450 [illegible]
1460 [illegible]
1470 [illegible]
1480 [illegible]
1490 [illegible]
1500 [illegible]
1510 [illegible]
1520 [illegible]
1530 [illegible]
1540 [illegible]
1550 [illegible]
1560 [illegible]
1570 [illegible]
1580 [illegible]
1590 [illegible]
1600 [illegible]
1610 [illegible]
1620 [illegible]
```

```
1630 INC $B1:INC $A40
1640 BEQ $1C5+$7A B411
1650 LDA (&B1),Y $A41
1660 JSR read
1670 CPY #$20:BEQ exp+4
1680 CPY #$2D:BNE rejected
1690 INC $B2:BNE $1C5+$7A B413:RTS
1700 rejected
1710 LDA #$1:JSR osword
1720 LDA #$2:JSR osword
1730 LDA #$3:JSR osword
1740 CPY #$2B:BNE nbase
1750 STA $A42
1760 nbase
1770 LDA #$22:CLC
1780 ADC $A41:JSR osword
1790 LDX $A68:LDY #$1E0 return
1800 LDA #$1:JSR osword
1810 [illegible]
```

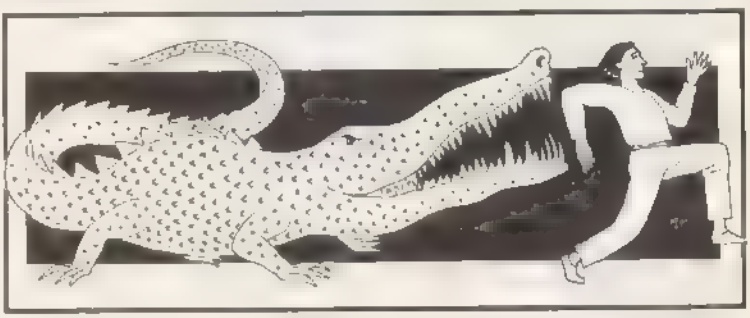
Programming: C128

Queue Bert

by S Wightwick

This week features the second and final part of this Q*Bert style game. There are five levels and the joystick should be plugged into port 2.

The object of this game is to paint each column whilst avoiding the green ball. The fire button of the joystick is used to pain the pyramid. The basic Q*Bert game can be readily built upon.



```
510 IF L=1 THEN SOUND 1,900,4
515 IF L=1 THEN SOUND 2,2500,5,1:L=10
520 I=157:PP=54 L=0
525 FOR M=153 TO [illegible] STEP -20
530 IF XX=M AND Y=PP THEN 700
535 IF XX=1 AND Y=PP THEN 700
540 I=I+20 PP=PP+23 NEXT M
545 IF YY<50 THEN 700
550 IF YY>R2 THEN 700
555 A=(INT(RND(1)#2))+1
560 IF A=1 THEN XX=XX+20 YY=YY+23
565 IF A=2 THEN XX=XX-20:YY=YY+23
570 IF XX<150 AND YY=55 THEN 610
575 IF XX<130 AND YY=91 THEN 610
580 IF XX<110 AND YY=107 THEN 610
585 IF XX<90 AND YY=135 THEN 610
590 IF XX<70 AND YY=159 THEN 610
595 IF XX<50 AND YY=175 THEN 610
600 IF XX<30 AND YY=211 THEN 610
605 GO TO 615
610 XX=XX+20 YY=YY+23
615 IF YY>R2 THEN XX=63 YY=50
620 SOUND 3,3000,7:L=L+10:S
625 MOVSPR 2,## YY GO TO 470
630 SOUND 1,3000 1
635 CIRCLE 2,XI,YI,5,5, ,270,50
640 PRINT 2,XI,YI RESTORE 645
645 FOR J=1 TO 28:READ BX,B=
650 IF BX=ANDBY=YANDY THEN 550
655 IF BX=XANDBY=YTHEN O(J)=0 GOTO 665
660 NEXT J
665 N=N+5 L=0
670 IF N=SC THEN LI=LI+1 SC=SC+100
675 LI$=STR$(LI+A"" CHAR 1,5,0,LI$
680 U$=STR$(UN) CHAR 1,32,0,U$
685 FOR J=1 TO 99
690 IF O(J)=0 THEN NEXT J GO TO 695
695 GO TO 550
700 COLLISION 1
705 SOUND 1,10000,90,1,1,62
710 SOUND 2,10000,90,1,1,61
715 SOUND 3,10000 90,1,1,60 V=V
720 SPRITE 1,1,16,1,1,0,0
725 IO UNTIL V<250
730 MOVSPR 1,X,Y V=V+4 LOOP
735 XFSITE 1,0 SPRITE 2,0
740 GOTO 465
745 SPRITE1,0,SPRITE2,0 X=0:Y=0:YY=199
```

```
750 MOVSPR 3,#[illegible]:135 MOVSPR 4,140:133
755 MOVSPR 5,182:133 MOVSPR 6,220 135
760 MOVSPR 3,0#4 MOVSPR 4,0#4 CO=2
765 MOVSPR 5,160#4 MOVSPR 6,120#4
770 SLEEP 1
775 FOR S=1 TO 6 SPRITE S,1,0,0,1,1
780 NEXT S
785 FOR X=153 TO [illegible] STEP -1
790 SPRITE 3,1 CO,0,1,1
795 SPRITE 5,1,CO,0,1,1
800 MOVSPR 4,X,XX,YY
805 SPRITE 4,1 CO,0,1,1
810 SPRITE 6,1,CO,0,1,1
815 CO=CO+1 IF CO>16 THEN CO=2
820 XX=XX+1 YY=YY-1 NEXT XX
825 FOR S=3 TO 6 SPRITE S,0 NEXT S
830 GO TO 480
835 REMARK RECORD SPRITES
840 SPRITE 1,0 SPRITE 2,#
845 SOUND 1 1100 100,1,1,10
850 SOUND 2,1500 100,1,1,9
855 SOUND 3,2000 100,1,1,11
860 [illegible] RETURN
865 SPRITE 1,0 SPRITE 2,0
870 SOUND 1,1,00,2
875 GO TO 205
880 COLOR 0,3:COLOR 4,3 GRAPHIC 1,1
885 COLOR 1,2 DO$="" FOR I=15 TO 1
890 CHAR 1,14,8,"[illegible]",1,1
895 CHAR 1 9,10,"BY STEPHEN WIGHTWICK"
900 CHAR 1,10,12,"1986 PUSH JOYSTICK"
905 IF [illegible] THEN DO=H DO$=STR$(DO)
910 CHAR 1,12,24,"HIGH SCORE"
915 CHAR 1,22,24,DO$
920 DO UNTIL JOY(2)<>0
925 SOUND 1,200,1,1,1,3
930 LOOP
935 GO TO 135
940 DATA 7,7,6,5,4
945 DATA 153,54,183,77,173,77,113,100
950 DATA 153,100,193,100,93,123 133,123
955 DATA 173,123,213,123,73 146,113,146
960 DATA 153,146,193,146,233,146,253
965 DATA 169,213,169,173 169,133,169
970 DATA 93,169,53,169,33,192,73,192
975 DATA 113,192,153,192,193,192,233
980 DATA 192,273,192
```

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Home Improvements

by Paul Stewart

The following QL program adds four new commands to SuperBasic, three of which are new procedures, the fourth being a function that can be used as an alternative to *Input*.

Two of the procedures are for finding out about variables. *Lvar* outputs all the variable names within a program and their values if they have been initialised.

Find, takes a variable name as a parameter and searches the program, listing all the occurrences thereof.

Lbas prints the names and line numbers of any Superbasic procedures and functions.

Finally, *Sedit* is a string edit command, the main value of which is that it can offer a default value to the user. This can be accepted by pressing *Enter* or changed by use of the control and cursor keys. Also, there is the option of specifying the maximum length of input. Eg *Dev$=Sedit(0,"Mdv1_",5)*

The syntax of the commands is as follows

Lvar channel
Find channel, identifier
Lbas channel
Sedit (channel, default text, max length)

To use the machine code on its own enter the following program line.

```
Start=RESPR(1480):Lbytes
mdv1_extras_bin,Start:Call
Start:New
```

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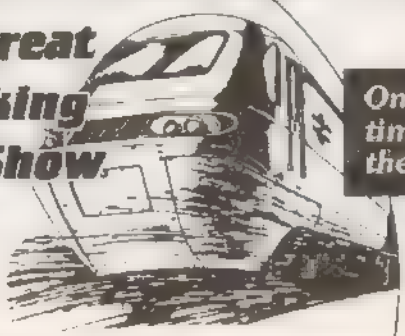

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POP9

```
100 Start=RESPR(1400)
110 FOR Line%=1000 TO 1700 STEP 10
120   Check=0
130   FOR Byte=0 TO 15
140     READ Num
150     Check=Check+Num
160     POKE Start+(Line%-1000)/10*20+Byte,Num
170   END FOR Byte
180   READ Checksum
190   IF Check<>Checksum THEN PRINT #0,"Error in line ";Line%:STOP
200 END FOR Line%
210 MSBYTES mdv1_extract_bin,Start,1400
1000 DATA 42,250,0,0,1,53,120,1,16,78,146,114,1,78,117,0,1,0,1,62,4,75,1234
1010 DATA 32,255,92,1,0,92,4,78,56,255,78,4,0,0,0,0,0,0,0,0,0,0,1156
1020 DATA 0,0,0,1,3,44,5,53,62,255,78,4,0,0,114,1,0,54,0,0,0,0,1036
1030 DATA 164,0,0,3,24,47,0,78,236,0,0,52,0,0,0,0,0,0,0,0,0,0,1
1040 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1050 DATA 165,0,32,165,24,0,48,3,165,4,0,0,0,0,0,0,0,0,0,0,0,0,1
1060 DATA 165,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1070 DATA 0,0,255,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1080 DATA 255,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1090 DATA 255,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1100 DATA 255,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1110 DATA 70,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1120 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1130 DATA 97,0,0,254,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1140 DATA 119,255,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1150 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1160 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1170 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1180 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1190 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1200 DATA 82,0,32,255,0,0,255,27,68,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1210 DATA 216,4,180,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1220 DATA 0,4,62,84,104,0,0,255,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1230 DATA 78,146,0,0,54,134,0,0,0,0,0,0,78,146,0,0,0,0,0,0,0,0,0
1240 DATA 103,0,0,114,44,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1250 DATA 78,146,0,0,54,66,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1260 DATA 216,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1270 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1280 DATA 78,146,0,0,54,134,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1290 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
1300 DATA 105,97,98,105,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
```

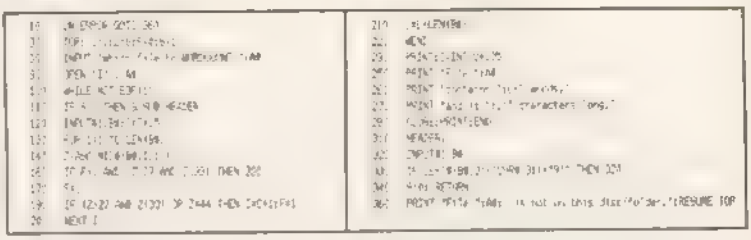
```
1310 DATA 78,114,0,0,192,105,0,0,0,0,0,0,97,0,255,192,0,0,0,0,207,255,192,0,0,0,72,47,113,1000
1320 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
```

Wordcount

by Roger Howorth

The following routine is designed to count the number of words in a 1st Word file. To use the program you must have saved the file you want to check before loading Basic into your ST. Then load and run Wordcount, entering the name of the file to be counted when prompted. For smallish files the program is fairly quick and accurate but for large files of say 12,000 words you can expect a wait of 20 minutes.

```
[illegible]
```



Thick Characters

by Peter McCluskey

This little routine creates a thickened character set on the 48K Spectrum. It stores the *Data* for the set between 64174 and 65198 although this can be changed to a location of your own choice by dividing the new location by 256 and putting this number into line 50 and the remainder into line 40.

```
10 FOR f=65200 TO 65227: READ a: POKE
f,a: NEXT f
20 RANDOMIZE USR 65200
30 DATA 30,0,61,17,174,251,1,0,3,126,2
[illegible]47,152,13,19,35,11,121,176,22,244,30
40 DATA 174
50 DATA 250
60 DATA 34,54,92,201
```

Hard Cat

by Nick Godwin

This disc utility for the Amstrad CPC provides a hard copy of the titles and amount of free storage space on a disc. The print out is in the same format as the usual screen display of the command Cat.

```
10 DATA dd,4e,00,dd,46,1,cd,60,bb,cd,5a,
bb,cd,2b,bd,b,78,b1,20,f2,c9
20 MEMORY HIMEM-21:FOR j=HIMEM+1 TO HIME
M+21:READ a$:POKE j,VAL("&"+a$):NEXT
30 MODE 2
40 PRINT "Insert disc then press a key."
50 CALL &BB06
70 CLS
80 INPUT:"DISC Ref: ",d$:INPUT;"  Side*
",s$:INPUT;"  Title: ",t$
90 CAT
100 LOCATE 1,1:CALL (HIMEM+1),80:PRINT #
8
110 FOR j=3 TO 25:LOCATE 1,j:CALL (HIMEM
+1),80:PRINT #8:NEXT
120 GOTO 40
```

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Commodore confusion

Raferty Raf, of Whitechapel, London E1, writes:

Q I would like to ask a few questions concerning part of the Commodore computer family, the C64m, C128, and the new C64c.

1) Are they all compatible, that is to say, does all software and hardware for the C64 work on the C128 and C64c and vice versa?

2) Is there any difference between the C64 and the C64c besides the casing?

3) If the answer to the first question was yes, is ■ worth buying a C128 for the extra memory?

A The Commodore 128 has an option which turns it into a Commodore 64 and in this state will run all of the 64 software. However, the opposite ■ not the case, since 128 software probably uses more memory and other of the advanced facilities of the machine. The C64c is still too new to comment on in depth. However, it *is* entirely compatible with the old 64, and it will be sold bundled with Geos, a Wimp-style operating environment (see *Popular*, August 7 and August 14 for a full Geos review). Geos is also to become available separately for the 64 shortly (see News Desk, August 28).

The C128 has advantages over the C64 other than simply more memory, but you must ask yourself if you really need them. The keyboard is far better than the old C64's; in 128 mode, the Basic is improved, the graphics are more accessible with higher resolution. In addition, there is a Z80 microprocessor stuck inside there somewhere giving access to CP/M.

If, however, you want lots of software, you generally have to change back to C64 mode and you might just as well have bought a cheaper C64.

File under . . .

S Hod of Greenwich, London SE10, writes:

Q On my Amstrad CPC 464 and disc drive, I am using the Micro-Soft Macro 80 assembler and Link 80 under CP/M and wish to use the machine code routines I write under Amsdos. However, whenever I try to load the object code created by these packages from Basic, using *Load"Test.Bin",&2000* for instance, I get a syntax error. This is presumably because Amsdos treats CP/M files as Ascii files.

Do you know any way around this problem?

A When you assemble a file *Test.Asm* under CP/M, using the CP/M assembler, you will get a *Test.hex* file. This is then converted into executable form using the *Load* command which in turn produces a *Test.Com* file ■ you rename the *Com* file as a *Bin* file *(Test.Bin)*, there is no reason why it should not load into the memory under Amsdos. Make sure that you delete any other *Test.Bin* files before you rename, to save confusion.

The problem you may have is that CP/M programs always start at 100 (hex) so ■ you load them into Amsdos at say 2000 (hex), all the assembled addresses will be wrong. What you need to do is put an *Org 2000h* at the beginning of the source file, before assembly, so that the resultant code has ■ the right addresses in ■.

Registering sets

M Hewitt, of Carlisle, in Cumbria, writes:

Q I have been teaching myself to program the Z80 microprocessor and after getting to grips with most of the instructions, find that there is something I don't understand. I have come across references to the alternative register set but don't understand what this is, and what it's for. Could you help?

A Internally, the Z80 has two sets of registers, accumulator and flags (AF), registers BC, DE, and HL plus one each of stack pointer (SP), program counter (PC), index register X (IX), index register Y (IY), interrupt vector register (I), and refresh register ■.

Two instructions allow access to the alternative register set: *EX AF,AF' (08)* exchanges the accumulator and flags with the alternative accumulator and flags, and *EXX (D9)* exchanges register pairs BC, DE, HL, with the alternative register pairs BC', DE', HL'.

Once an exchange has taken place, the alternative registers are left alone and retain their data unless the machine is switched off or an operating system interrupt routine exchanges them again (be careful of the latter).

The alternative registers can be useful for interrupt routines that need to be dealt with quickly. Since information kept within the processor registers is accessed a lot faster than that kept in memory, the alternative registers can be set up to contain data specifically to deal with an interrupt routine.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke, PCW*, 12-13 Little Newport Street, London WC2R 3LD

Processing words

Curtis Schwartz, of London, writes:

Q I have an Atari ST and an Amstrad PCW 8256. Is there any way I can word process on the ST and then transfer files to the Amstrad for print-out? What sort of interfaces, extra software, would I need? Will I have to buy a separate printer for use with the ST?

A Both machines use the Centronics printer interface so all you should need is a cable to connect your ST to the printer. Unless you really have to, there is no need to transfer to the printer via the Amstrad. However, if you must, then get an RS232 interface for the Amstrad (the ST has one built in) and select serial printer from the appropriate menu on the ST's desk top. Printing the document from your ST word processor should then transfer it to a file, via the RS232, to the 8256.

The ST ports are as follows:

RS232

Pin	Function
1	Ground
2	TX, Transmit data
3	RX, Receive data
4	RTS, ready to send
■	CTSN, clear to send
7	Ground

These are all you will need. Simply connect the TX on the ST to the RX on the 8256, the RX (ST) to TX (8256), the CTS (ST) to RTS (8256), the RTS (ST) to the CTS (8256), and the grounds to the grounds. The ST plug is a 25-way D connector female (usually these are male but the ST is unusual in this respect). The 8256 plug type will depend on which interface you get.

The ST printer connection is.

Pin	Function
1	Strobe
2–9	Data
11	Busy
18–15	Ground

All other pins are unused. The plug is ■ 25-way D connector male.

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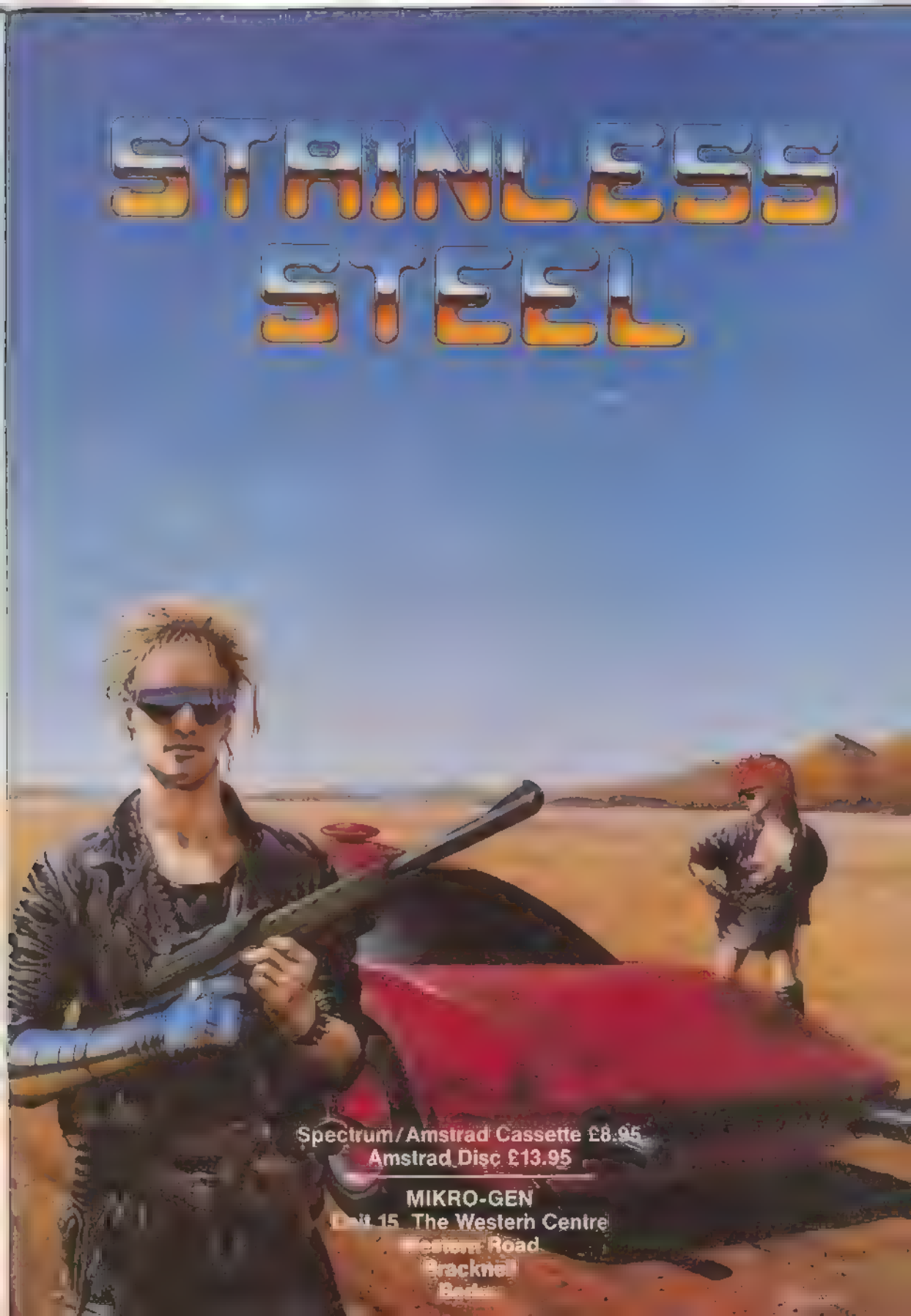

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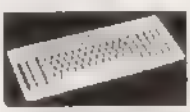

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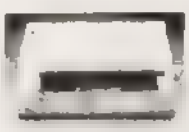

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Musical offerings on the Amiga

Mark Jenkins with news of the first Amiga music package Instant Music from Ariolasoft

Much has been said about the various outstanding capabilities of Commodore's Amiga, including its customised sound chip. Yet, of the software that has been appearing for the machine, there has been very little in the UK of a musical nature.

Once you've got an Amiga up and running you should find a reasonably good selection of software available, and that's important for musical users since an expenditure of £2,500 or so on the part of a studio or individual would have to be justified with secondary uses such as word processing, accounts and graphics applications.

The Amiga's ideal for all these, but is it any good as a music computer? The opposition in musical terms is clear – the Apple Mac is well-established, popular, but eccentric in some ways, while the Atari ST's are powerful, inexpensive, and Midi-equipped for direct connection to synthesisers. The Amiga's advantages are two-fold – it's multi-tasking, so many operations can be carried out without stopping what you're already doing (particularly useful in a real-time occupation like music-making), and the built-in sound chip is unusually powerful.

Ariolasoft's *Instant Music*, which astonishingly seems to be the first Amiga music package available in the UK, allows you to compose with the four-voice built-in stereo sound chip, which has sounds on a par with Yamaha's CX5 FM synthesis micro. The disc loads in a minute or so, after you've used the Amiga's Kick Start operating system, and uses a single display with various pull-down menus.

The main screen shows a variable number of measures of music with each voice indicated in coloured blocks once you've loaded a piece of music. There are stacks of demos in all styles, covering rock, pop, jazz, blues, folk, classical and even minimalist styles. The Parent Directory lists the styles and sub-directories list the demo pieces, which include some simple chord progressions to help in your own compositions.

The pull-down menus are as follows; Draw (pitch guide, rhythm guide, quick-draw pattern, scale ruler), Edit (erase color, eras colors, copy color, copy all colors, paste color, paste all colors), Sound (library one, library two, library three), Jam (score rhythm, keypad rhythm, free rhythm), Project (*Load, Load New, Save, Save As, Quit*), Options (song size, sound menu, empty buffer).

Draw allows you to enter notes with the mouse and you can bring up a keyboard at the side of the screen to help find the correct pitches. Quickdraw lets you tie a line between two points in a tune and enters notes along it in approximately the right key and scale for you, which you can then edit to your exact desires.

The Edit section itself allows you to erase, copy and exchange "colors" (color-coded voices) while Library calls up the available sounds, including a decent flute, some synth effects, slap bass, reeds, organ, pianos, a sampled electric guitar strum and a sampled drumkit with bass, snare, toms and woodblock assigned to different octaves. You can't create your own sounds but you can re-organise the library as you like.

Jam lets you play any of the four voices "live" with any sound using the mouse (zipping it up and down the music grid), or tapping the function and numeric keys to select new rhythms, both functions limiting the notes and rhythms available to fit in with the backing music. The third option, Free, allows you to play any note at any point, which obviously means that the result could be more spontaneous but not so neat.

Project allows you to load and save new songs and sounds while Options allows you to set the length of the song up to 64 measures, clear the compositional buffer if you've overloaded it, and create new sound menus. The other controls available on-screen allow you to change the tempo, decide how many measures are displayed for editing and composition purposes, choose types of chords which can be automatically entered, switch on Quick Draw and the Mouse Jam facility, start and stop playing, mix the volumes of the four voices and change their pitch up and down one octave.

Overall, *Instant Music* offers a peculiar set of compromises between complete freedom and helpful "play-along" type features such as auto rhythm and scale following, quick drawing of tones and chords and so on. It's not fantastically easy to compose complex tunes with, but it's not difficult to create something; you can even transpose entire tunes using the up-down arrow keys, but no on-screen indications appear to say you've done so.

Who's likely to use *Instant Music?* It's a great toy for anyone who has an Amiga, and highly recommended at the price. But it's not a professional composition system (it's equal to about half a Yamaha CX5 although a little more approachable) and so is likely to be used as a scratch pad by professional musicians who'll also want a Midi interface to connect the Amiga to professional synthesisers. Anybody got an Amiga Midi interface for sale?

If you have any queries or tips for this column, please write to Mark Jenkins at *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP. Mark would also welcome examples of your own music on audio or program tape, or disc.

Return to sender

David Wallin answers more letters

More answers, comments, etc, from the mailbag this week.

To begin with, I've got two points to make about PSS. Firstly, the price: a BT executive contacted us to point out that we quoted charges higher than they are. I said that to contact the USA via IPSS costs £6.00 an hour, in fact it costs £4.50 (including Vat, that's £5.17½).

Secondly, the use of PSS: I said that it is unlikely that you will use PSS to call a number in the UK. Perhaps I should have added: 'if you live outside the 01- London area'.

Derek Meakin of MicroLink has sent me a Telemessage to point this out. For those of you who don't know, MicroLink is a sub-section of Telecom Gold, and it is also the fastest growing online database in Britain. As the main TG computer is in London, to access from outside London either requires PSS or plenty of money to spend on phone calls. It is the same with services like *Mud* and the other main E-Mail services in this country.

A quick question from Gary Carter. He wants to know of Bulletin Board software for the Amstrad. Well, Gary, I shall assume you have a disc and therefore have CP/M. Most of the well-known BBS (Bulletin Board Systems) are available under CP/M.

By dialling a board using a well-known BBS (eg, TBBS London, CBBS SW) and talking to/leaving a message to the Sysop you may be able to find out how/where you can get hold of the software.

A warning though: TBBS, etc, cost a fortune (most well known BBS software costs well over £100). I believe there is some Amstrad CPC BBS available somewhere, but I'm not sure where. Any readers out there know of any?

One reader has a problem that I have to admit has me foxed. Mr S Bainbridge of Liverpool has an MZ80K (without the expansion box) and a 16K TRS80, and he wants to connect a modem to one or both of them. If any readers know anything about connecting a modem to one or both of these computers, then both I and Mr Bainbridge would be grateful to hear from you. Also, Mr Bainbridge, you could try getting a friend to log on to a BB and leave a question in a relevant Sig (eg, Tandy, Hardware, etc).

Cameron Rattray of Clackmannan in Scotland has written in about *Mud* and ST communications. Firstly, on the subject of comms software for the ST, there is a communications package from Miracle Technology (0473 216141) which is both Viewdata and Ascii, which also has VT100 emulation, and also K-Com from Kuma (07357 4335) which is only Ascii, runs under Gem and costs £50.

You could also try ST Term which is free, available under Public Domain. This is Ascii only and I believe it is not very reliable.

Cameron also wants to know if the Demon modem from Walkbury Consultants will work on the ST. Yes and no is the answer. Some of the modem's features will work and some won't. If any readers use a Demon and ST then please could you let me know the details.

> *"The Interface has many sections including a software file, hardware corner, hints and tips, and music. It does not use the usual Communitel software, it uses Billifax software which was written by the Sysop"*

Your best bet is either to buy an intelligent modem (if you read the recent article on intelligent modems then you will know that they cost a fortune), an ST-dedicated modem/communications package, or a standard modem. A standard modem is one which is not machine dedicated (ie, the Commodore modem is Commodore dedicated, and the WS2000 Voyager 11 (or 7) modem from Modem House is good value and I personally would recommend it (an ST comms package will be coming out in two or three months from Modem House).

The WS2000 is a good modem, but the WS4000 (if it is now available) is definitely worth a look, it is Hayes compatible and costs less than £150.

Lastly, a cheap modem for only £49 (inc Vat and P&P) is available. The Miracle Systems Limited modem, claimed to be the smallest modem in the world, has 1200/75 and 1200/1200 (these speeds are perfectly okay for use with *Mud*) and autodial as standard. It is not approved and so should not be used on the PSTN.

Thanks to Mr Phil Cotterill for his letter regarding printing a chart of modems available. Other readers have mentioned this in letters, but Mr Cotterill sent a letter purely requesting a modem list. For all readers who want a list of modems, I'm currently compiling a chart and trying out as many modems as I can so that I can give a fair opinion of most of them. Watch this space.

Lastly, information on two new Bulletin Boards. The Interface and the other has apparently no name (?). Firstly, The Interface. This is a viewdata board run in the Midlands. The number is 0527 71251, 1200/75 standard viewdata format.

The system has many sections including a software file, hardware corner, hints and tips, and music. This board runs on a BBC but does not use the usual Communitel software, it uses Billifax software which was written by the Sysop himself, 14-year-old William Swire. Interestingly, more and more new Sysops seem to be teenagers.

The second board, the anonymous one, is a standard BB; it runs on 300/300 baud, 8N1. It is run on an ST, so all of you ST owners wanting to start your own BB are advised to give this board a ring. The Sysop says that he believes it to be the first ST-run BBS, and I think he's right. It contains the following sections: 'open to all' Sig, '16-bit computers' Sig, 'adventure help' Sig, 'other micros' Sig, and free software.

The hours of access to the board with no name are Saturday and Sunday, 9pm to midnight. Barry Walker, the Sysop, says that when you log on he would like you to leave at least one 'open to all' message. Finally, the all important number: 021-472 2718.

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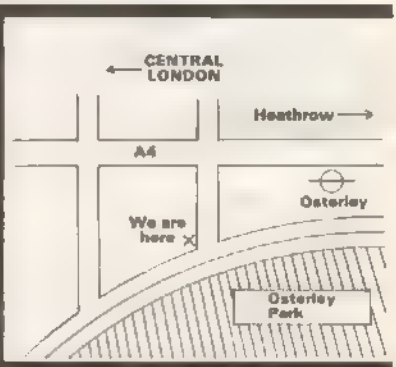

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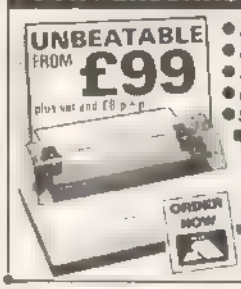

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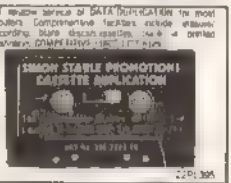

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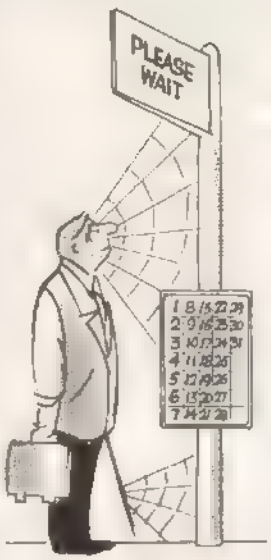

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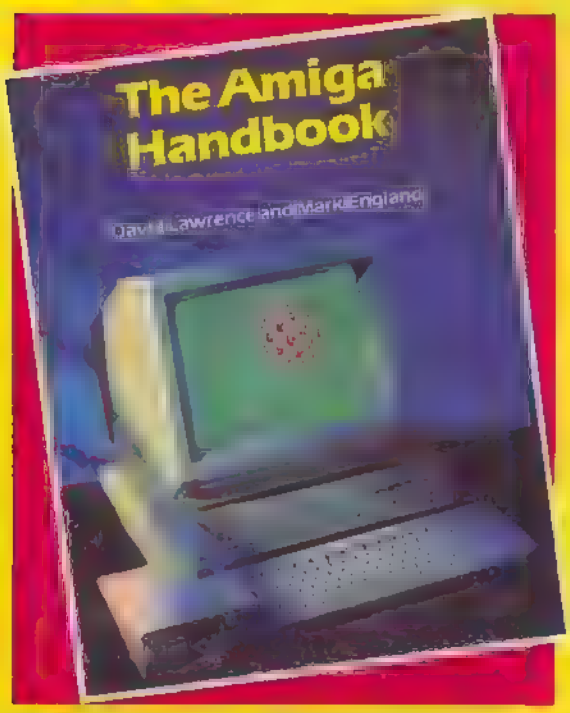

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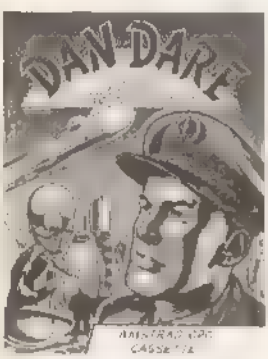
Program *Olympiad '86* **Type** Arcade **Micro** Amstrad CPC **Price** £2.99 **Supplier** Atlantis Software, 28 Station Road, London SE25 5AG.

Program *Dan Dare* **Type** Arcade Adventure **Micro** Amstrad CPC **Price** £9.95 (tape) £14.95 (disc) **Supplier** Virgin Games, 2–4 Vernon Yard, Portobello Road, London W11 2DX.



Program *Tobruk* **Type** Simulation **Micro** Amstrad CPC **Price** £9.95 (tape) £14.95 (disc) **Supplier** PSS, 452 Stoney Stanton Road, Coventry CV6 5DG.

Program *Trivial Pursuit* **Type** Quiz **Micro** Amstrad CPC **Price** £14.95 **Supplier** Domark, 204 Worple Road, London SW20 8PN.

Amstrad CPW

Program *Aftershock* **Type** Adventure **Micro** Amstrad PCW **Price** £17.95 **Supplier** Interceptor Micro, Mercury House, Calleva Park, Aldermaston, Berks.

Program *Lernloco* **Type** Educational **Micro** Amstrad PCW **Price** £16.95 **Supplier** Minerva Systems, 69 Sidwell Street, Exeter EX4 6PH.

Atari

Program *Atari Smash Hits Vol 5* **Type** Compilation **Micro** Atari 400/800/XL/XE **Price** £9.95 (tape) £14.95 (disc) **Supplier** English Software, 1 North Parade, Parsonage Gardens, Manchester M60 1BX.

Program *Ninja* **Type** Arcade **Micro** Atari 800XL/130XE **Price** £2.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Okay, so there have been quite a few martial arts games in the past year or so – but how about a multi-screened arcade adventure type martial arts game.

Karateka? Fist II? Well, the former is getting on a bit and is quite pricey. The latter, impressive though it is, hasn't been released yet and costs nearly £10.

But, on the other hand, in your shops now, for the princely sum of £2.99, you can get a game from Mastertronic, called *Ninja*.

Ninja is wonderful. Not only can you stick the boot (or at least, foot) into the assorted karatekas, thugs and evil ninjas defending the palace (you are trying to rescue a princess, but that's pretty irrelevant to the action) – you can stick the hands, daggers and throwing stars in as well. You can even stick the stick ... or is it a sword?

Lots of moves, lots of enemies, lots of action. It won't take you a month to complete, but at this price it's still a bargain. Out now on Atari, on Commodore soon.

Pick of the week

Watch for Sentinel

Program *Sentinel* **Type** Strategy **Micro** BBC B, C 64, Amstrad CPC **Price** £9.95 **Supplier** Firebird, 74 New Oxford Street, London WC1.

The red phone rang. I picked up the receiver, then immediately dropped it. It was the Hot Line.

"Listen," a voice said. "Waffle, waffle, [illegible] speak, burble, totally original, rhubarb, 10,000 levels, unique strategy, gin martini, Geoff Crammond."

It was the last item that woke me up. Geoff Crammond? That mega-being from the ninth dimension that wrote Revs?

I rushed over to Firebird HQ, my heart beating fast in expectation. Cloaked acolytes led me into a darkened room – and there it was – *Sentinel*.

Sentinel is totally original, requires unique strategies, and although I didn't count them, I'm prepared to believe there are 10,000 levels. And it's going to be big.

Sentinel is a game all about 'energy', set in a fantasy/abstract environment. Each level consists of a large *Marble Madness* like, geometric landscape, dominated by one or more sentinels.

You are placed within the landscape itself, and can pan left/right, up/down in all directions, scanning around the predominantly two colour surroundings.

The aim of the game is to eliminate the sentinel(s) by absorbing its energy. To do this you have to be positioned above it. You start off low down. You must ensure you are out of its energy absorbing gaze – which scans around the playing area like a deadly lighthouse beam.

Energy can be gained by absorbing surrounding objects – trees or rocks or robots. You move by creating a robot somewhere within your view (creating expends energy), and then transferring your 'ego' into it. Then you look back, remotely absorb your old self . . . and wonder what to do next.

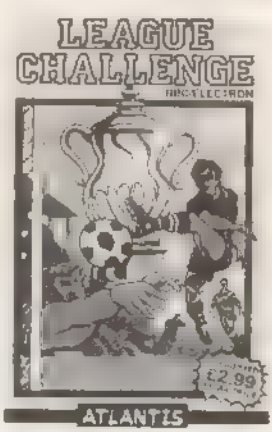
Create a stack of rocks, then a robot on the top, transfer and view the surroundings perhaps?

More likely, panic and press hyperspace as you realise the sentinel is sucking energy from you at a rate of knots.

It's due for simultaneous releases on BBC B, Commodore 64 and Amstrad CPC sometime this autumn. If you're at the *PCW* show, don't miss this being previewed on the Firebird stand. Awesome.

BBC/Electron

Program *League Challenge* **Type** Arcade **Micro** BBC/Electron **Price** £2.99 **Supplier** Atlantis Software, 28 Station Road, London SE25 5AG.



Program *Trivial Pursuit* **Type** Quiz **Micro** BBC B **Price** £14.95 **Supplier** Domark, 204 Worple Road, London SW20 8PN.

CBM 64

Program *Hole in One* **Type** Simulation **Micro** CBM 64 **Price** £2.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2.

Program *64 Source Generator* **Type** Utility **Micro** CBM 64 **Price** £6.95 (tape) £8.95 (disc) **Supplier** Stortsoft, 18 Crown Close, Sheering, Bishop's Stortford, Herts CM22 7NX.

Program *Dan Dare* **Type** Arcade Adventure **Micro** CBM 64 **Price** £9.95 **Supplier** Virgin Games, 2–4 Vernon Yard, Portobello Road, London W11 2DX

Program *Trivial Pursuit* **Type** Quiz **Micro** CBM 64 **Price** £14.95 **Supplier** Domark, 204 Worple Road, London SW20 8PN.

Program *Parallax* **Type** Arcade **Micro** CBM 64 **Price** £8.95 (tape) £12.95 (disc) **Supplier** Ocean Software, 6 Central Street, Manchester M2 5NS.

Program *WAR* **Type** Arcade **Micro** Commodore 64 **Price** £9.95 **Supplier** Martech, Martech House, Bay Terrace, Pevensey Bay, East Sussex BN24 6EE.

Singing: (Adopts butch voice) *"WAR . . . hunnngh, what is it good for?"* (a much revered song in *Popular* circles, the Frankie Goes To Hollywood version notwithstanding) . . . now comes *War* the computer game from those nice people Martech down in deepest Pevensey Bay. But unfortunately, while being less violent than the real thing and a little more sensible than the FGTH version – this particular manifestation of War has little else to recommend it.

While *Uridium* clones are obviously 'in' at the moment, *War* has neither the added features of, say, *Parallax* or the virtue of being very cheap – like *Warhawk*.

Like *Uridium*, you fly along – sometimes under – the surface of an alien artefact (metallic, heavily shaded) shooting it up, avoiding alien ships, racing against time.

Once you have blown up enough emplacements, you can exit the level through a gate – and now comes the original bit, the colour lock.

This is a puzzle which has several rows of coloured squares scrolling right to left, with you controlling two cursors – one along the right-hand Y axis, one along the bottom X axis. Manoeuvring these, you must fire at a nominated colour – which will turn black if you hit it.

To complete the colour lock, you must turn black all of the squares of that particular colour. With a limited ammunition supply and a stiff time limit.

Combine this with the fact that many of the colours are almost indistinguishable from each other (particularly the oranges and the greys) and you have a challenge that the *Popular* battle droid failed to rise to.

"WAR . . . hunnngh, what is it good for?" Answers on that infamous postcard please

QL

Program *Qdrive* **Type** Utility **Micro** QL **Price** £9.95 **Supplier** Consoft, 31 Penerley Road, Rainham, Essex.

Spectrum

Program *Aftershock* **Type** Adventure **Micro** Spectrum **Price** £9.99 **Supplier** Interceptor Micro, Mercury House, Calleva Park, Aldermaston, Berks.

Program *Moron* **Type** Arcade **Micro** Spectrum **Price** £1.99 **Supplier** Atlantis Software, 28 Station Road, London SE25 5AG.

Program *Olympiad '86* **Type** Arcade **Micro** Spectrum **Supplier** Atlantis Software, 28 Station Road, London SE25 5AG.

Program *Moonlight Madness* **Type** Arcade Adventure **Micro** Spectrum **Price** £7.95 **Supplier** Bubble Bus Software, 87 High Street, Tonbridge, Kent TN9 1RX.

Program *Dan Dare* **Type** Arcade Adventure **Micro** Spectrum **Price** £9.95 Supplier Virgin Games, 2–4 Vernon Yard, Portobello Road, London W11 2DX

Program *HRH* **Type** Adventure **Micro** Spectrum **Price** £6.95 **Supplier** 8th Day, 18 Flaxhill, Moreton, Wirral, Merseyside L46 7UH.

Program *Trivial Pursuit* **Type** Quiz **Micro** Spectrum **Price** £14.95 **Supplier** Domark, 204 Worple Road, London SW20 8PN.

Program *Trap Door* **Type** Strategy **Micro** Spectrum **Price** £7.95 **Supplier** Piranha, 4 Little Essex Street, London WC2.

Trap Door is an unusual program on several counts. Firstly it is a tie-in with a children's TV series that hasn't gone out on air yet (it starts early October), and secondly, unlike most tie-ins, it is an excellent game that captures the spirit of the programme very well indeed.

The series is based on the trials and tribulations of Berk – servant of the Thing Upstairs – who is fated to trudge around the basement of a huge castle, trying to obey commands given from above (incidentally, the TV programme will be unissable, kill to see it if necessary).

Berk's life is hampered by the various nasties that creep out of the trap door that leads down to the basement cellar. And so it goes with the computer program. Beautifully animated with large, colourful sprites, you control the bumbling Berk to obey a series of orders that are shouted down by the Thing.

The tasks, aided by Boni (a talking skull) abetted by Drutt, the pet spider, are tricky to complete and need a fair amount of lateral thinking to work out. Yup . . . I had to fall back on the cheat sheet.

An excellent program in terms of originality of ideas and excellence of implementation, its only failing is that it doesn't fall neatly into any one particular catagory. Is it arcade? Is it arcade-adventure? Is it strategy

Make up your own mind, but if you are looking for something a little bit different with instant visual appeal – *Trap Door* has got a lot going for it.

Role-playing with games

Currently many computer games are advertised or reviewed as incorporating role playing elements. When these claims are examined closely, they usually mean that the player controls a fighting character who moves through an imaginary world and tries to kill monsters.

Sometimes there are other objectives, such as puzzle solving and accumulation of treasure, but the main thrust is always towards combat. Frequently these games are compared with *Dungeons and Dragons*, which, incidentally, is a trademark of the American TSR corporation, not a generic description.

It's difficult to avoid the impression that all role playing consists of killing monsters, and that *Dungeons and Dragons* is the only role playing game around. Both these impressions are false.

Currently there are approximately a hundred different role playing games; the number varies as companies release new games, drop old ones, or go out of business, and specialised magazines like *White Dwarf* and *Adventurer* devote much of their space to describing the latest innovations, and keeping track of the activities of the companies that produce them. While most of these games include combat rules, many modern systems make combat so lethal that it's rarely an important part of the game.

Even *Dungeons and Dragons* has gone a long way towards this position; many *D&D* adventures published in recent years feature elements of diplomacy and intrigue, with combat of secondary importance.

In most cases role playing, taking on the persona of the character being played, is the most interesting aspect of a game, and the current range of subjects offers an immense choice of roles, from the heroes of fantasy and science fiction to 1920s horror and hard-boiled detection.

> *"a certain amount of backstabbing is fairly common"*

This aspect of role-playing is missing from almost all computer games; characters are little more than fighting machines, who live or die by the sword or wand.

Another aspect of role playing games that hasn't carried over to their computer equivalents is open-endedness. When the first role playing games appeared, their referees (the people who control the game world) soon learned that players didn't always do what was expected. A referee could spend weeks designing a complicated multi-level dungeon, then discover that his players preferred to go out and explore the surrounding wilderness. Usually the referee didn't mind these detours, since the original plans could always wait for another day.

Other problems could arise when players had totally unexpected ideas. One published role playing adventure is known to have a final scene that no-one ever plays; the adventure always ends prematurely, because the author left a fairly obvious loophole that someone always exploits. The limits imposed by computer games make such improvisation impossible, and take away the joy of knowing that you've outsmarted the author or referee.

The final aspect that's missing is interaction between players. While role playing sessions rarely end in blows, a certain amount of backstabbing is fairly common. Characters are often betrayed by their 'friends', or placed in awkward situations by each other's actions.

Sometimes most of the action of a game comes from the players' conflicts; one SF game has the motto "Trust no-one! Keep your laser handy!" and means every word of it.

None of this is intended to stop readers buying this type of computer game; given the current limits of computers, nothing much better is likely to appear. However, readers with some experience of the hobby will know that it'll probably take one or two real breakthroughs in artificial intelligence to produce programs as open ended as a real role playing game.

Marcus L Rowland

NEXT WEEK

PCW show special

You cannot afford to miss our eight-page report on the PCW show.

If you attended, check on the products you may have missed, if you didn't, find out what all the fuss was about.

The new machines, the new peripherals, the new utilities, the new games – everything the manufacturers have got lined up for release this autumn . . . it'll all be in *Popular's* show report.

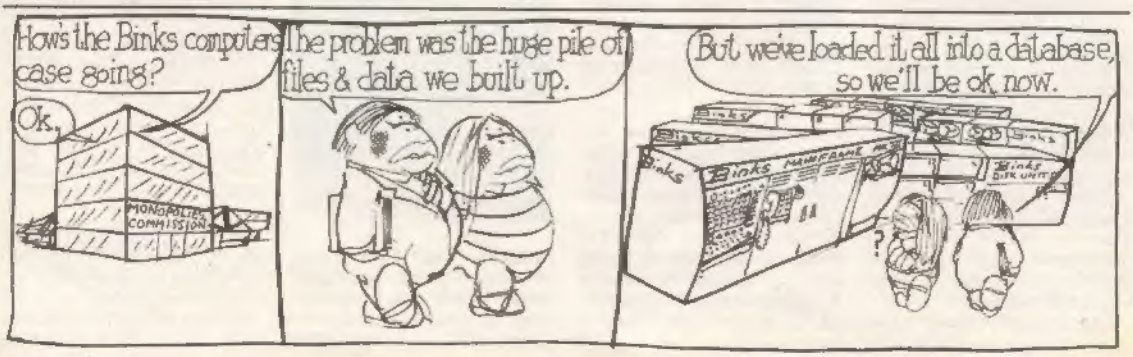
MSX lives!

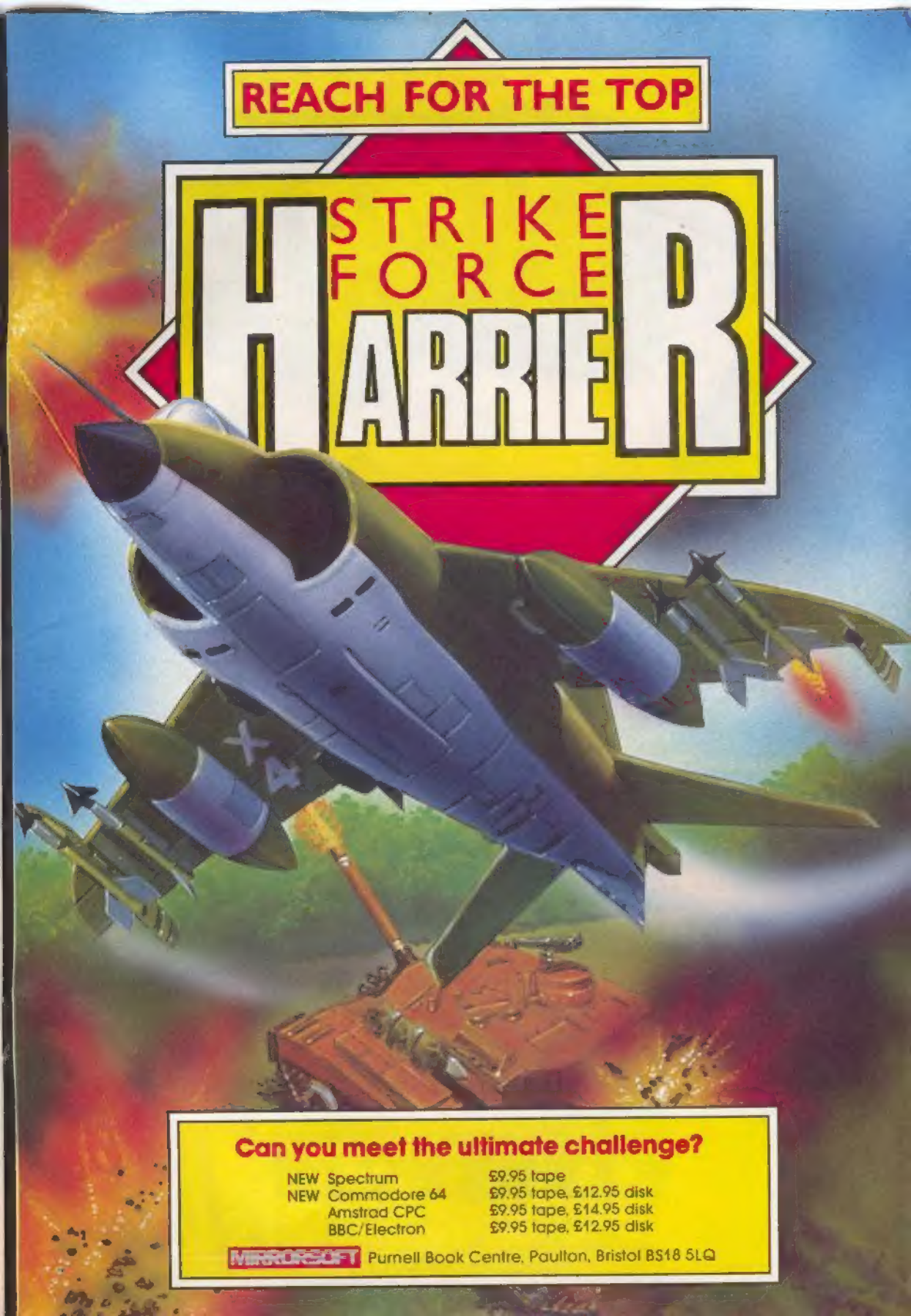
Pioneer's new MSX machine combines micro and video technology, with superior computer graphics. Peter Van Doorn reports.

Buffing up your DMP buffer

For CPC owners: increase your printer buffer from 2K to 8K. Dave Race explains how.

Hackers

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